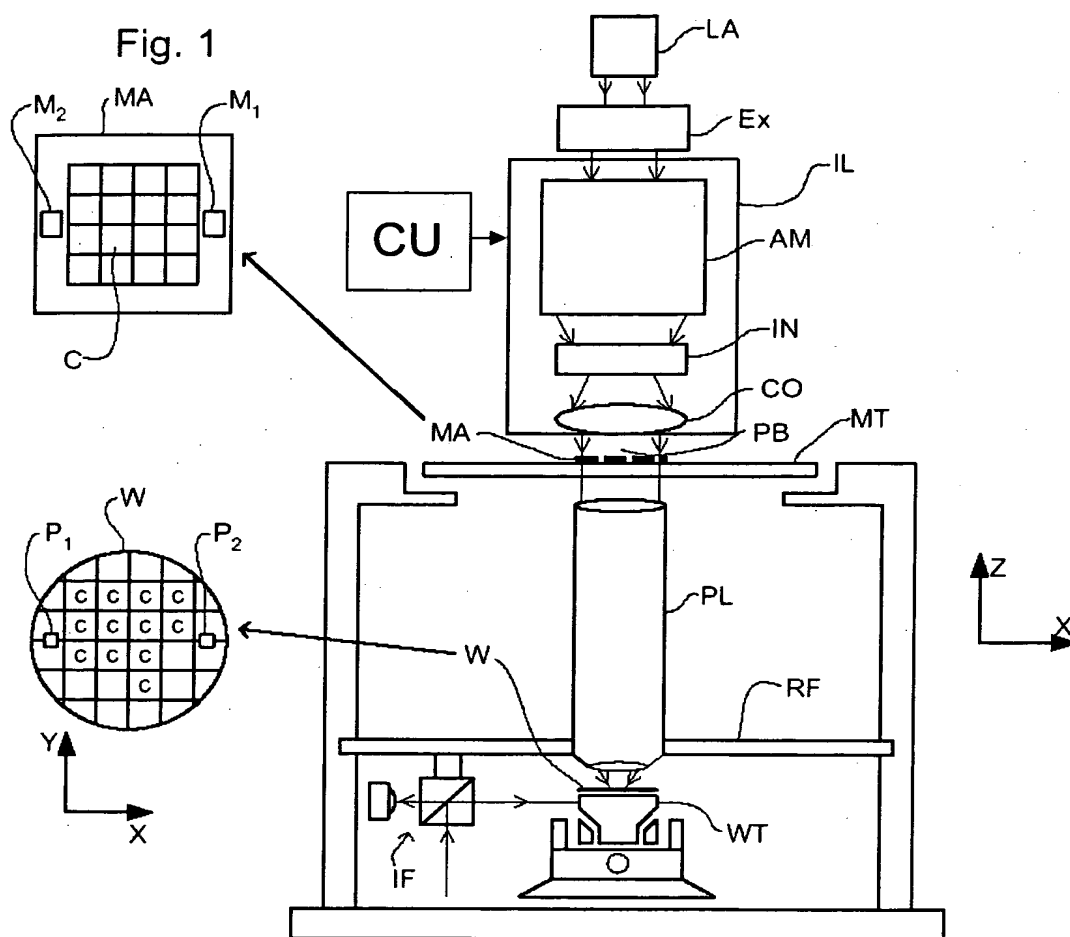


Fig. 1



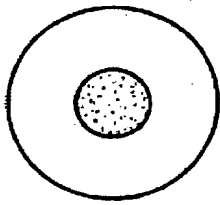


FIG. 2

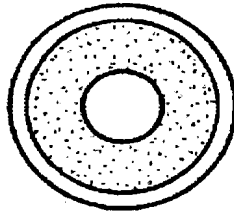


FIG. 3

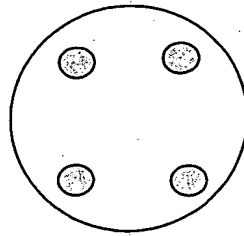


FIG. 4

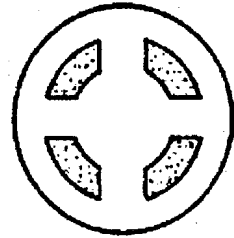


FIG. 5

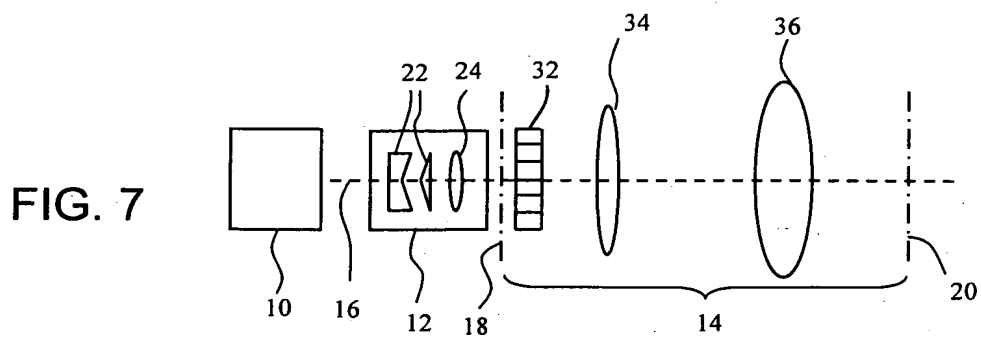
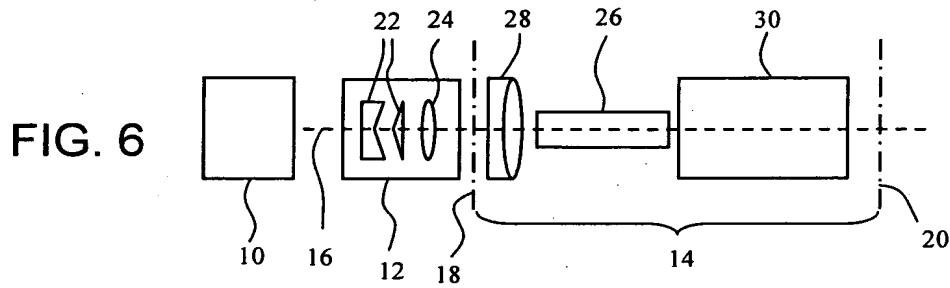


FIG. 8

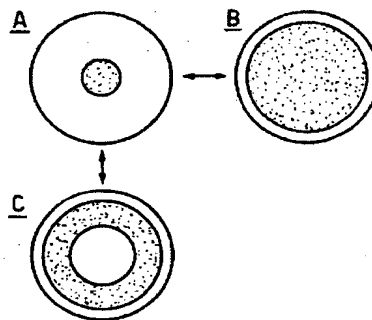
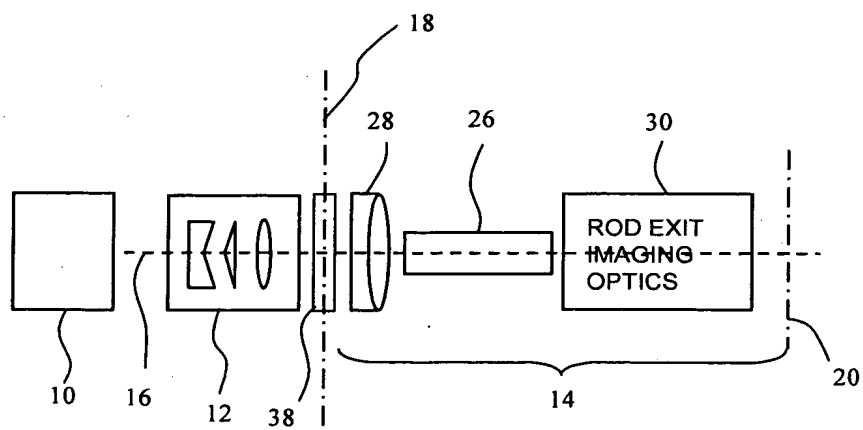


FIG. 9



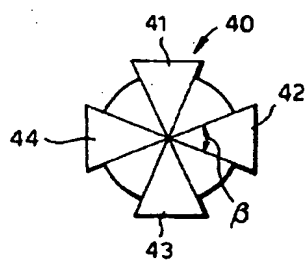


FIG. 10a

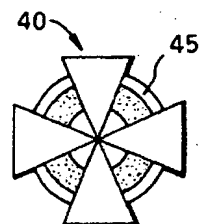


FIG. 10b

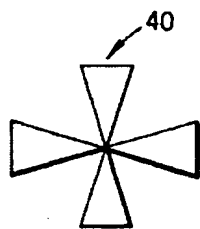


FIG. 11

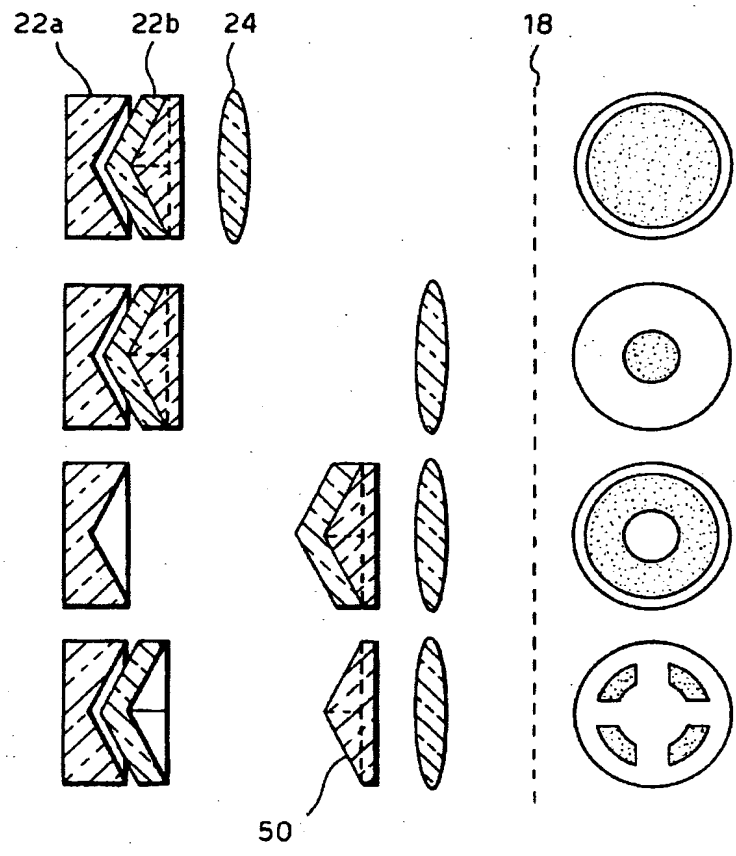


FIG. 12

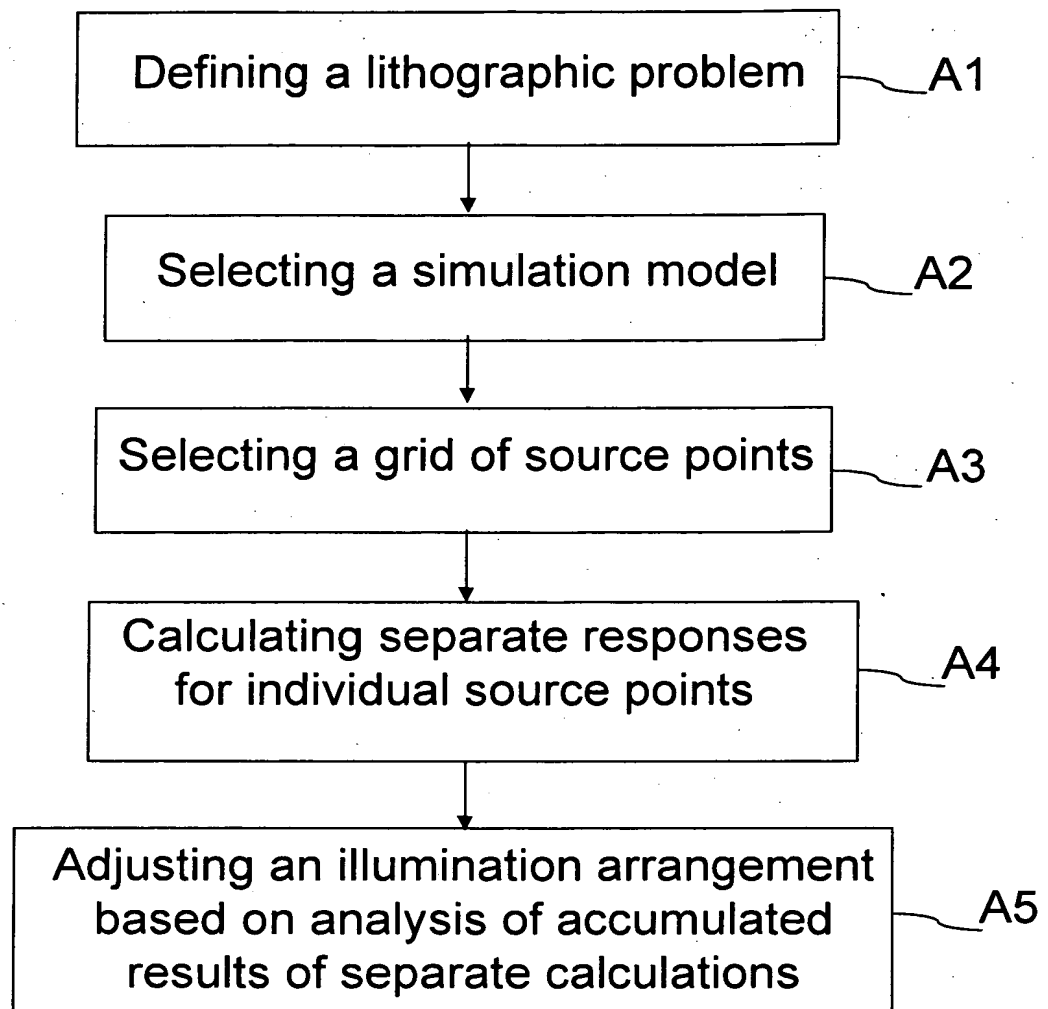


FIG. 13

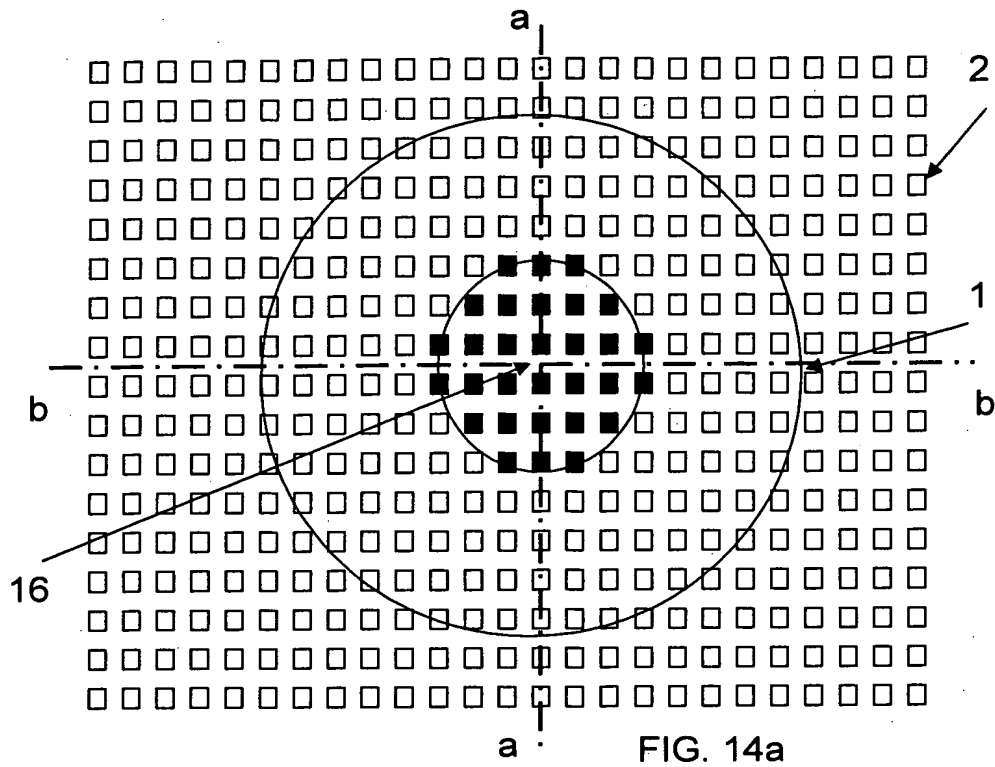


FIG. 14a

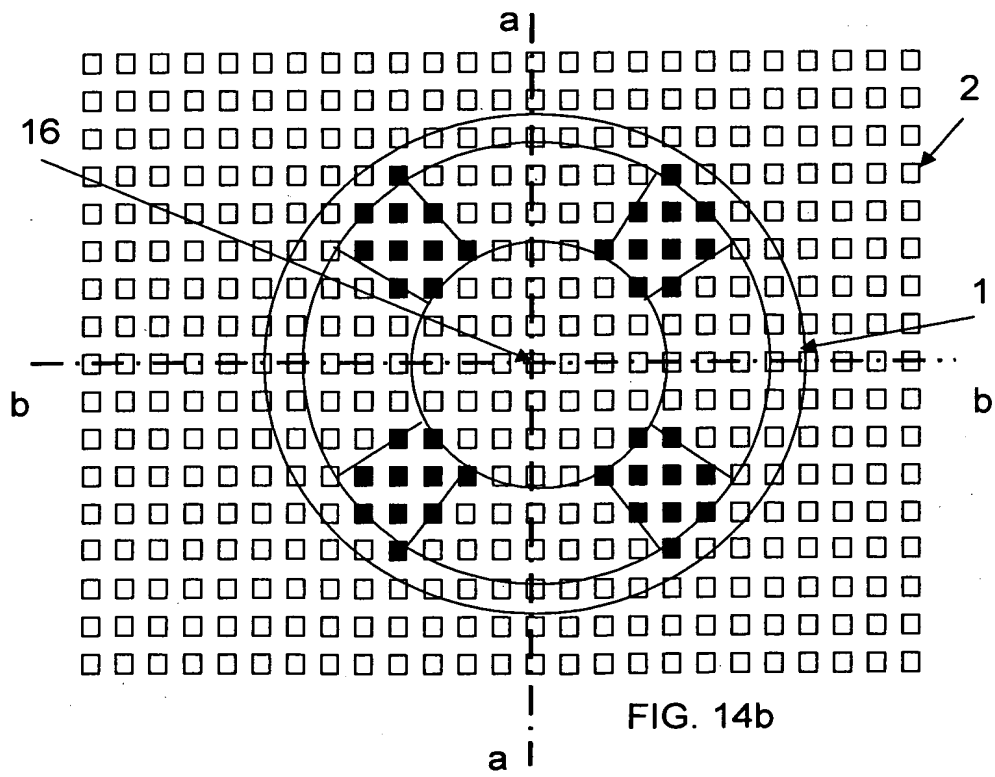
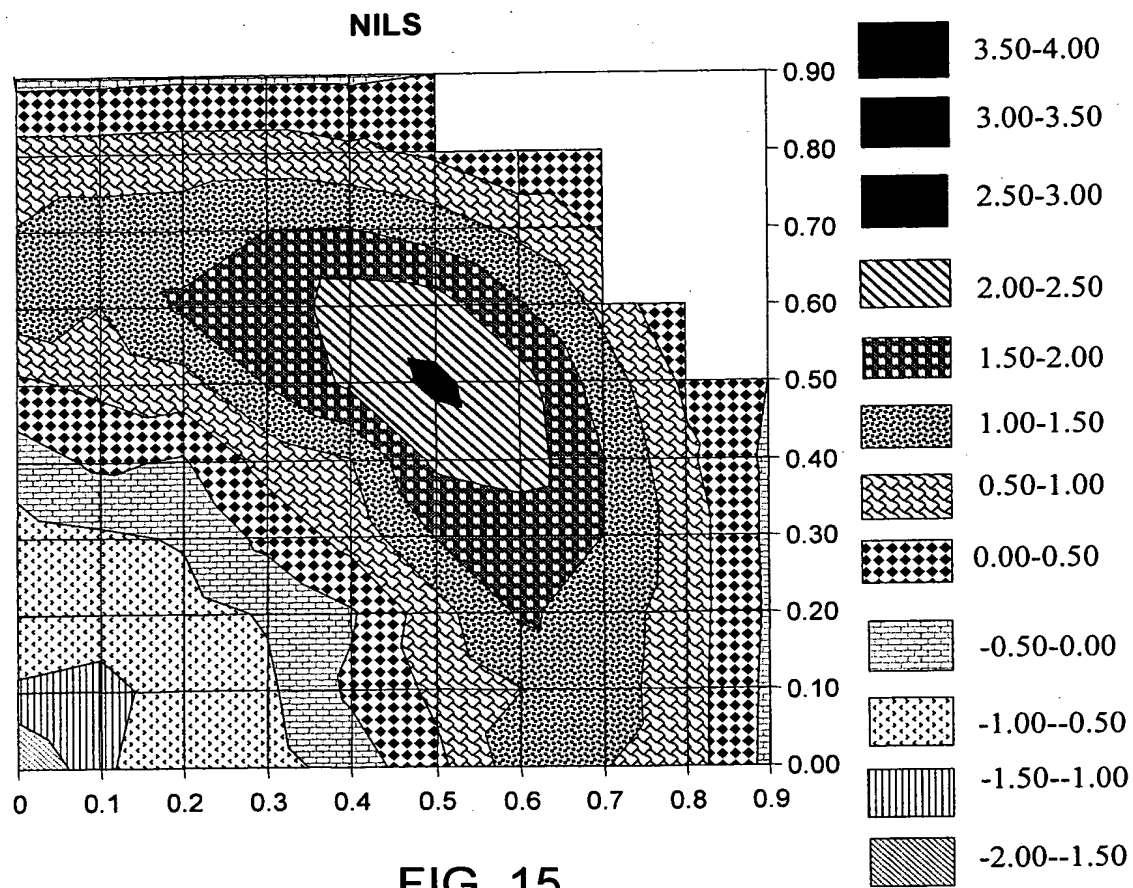


FIG. 14b



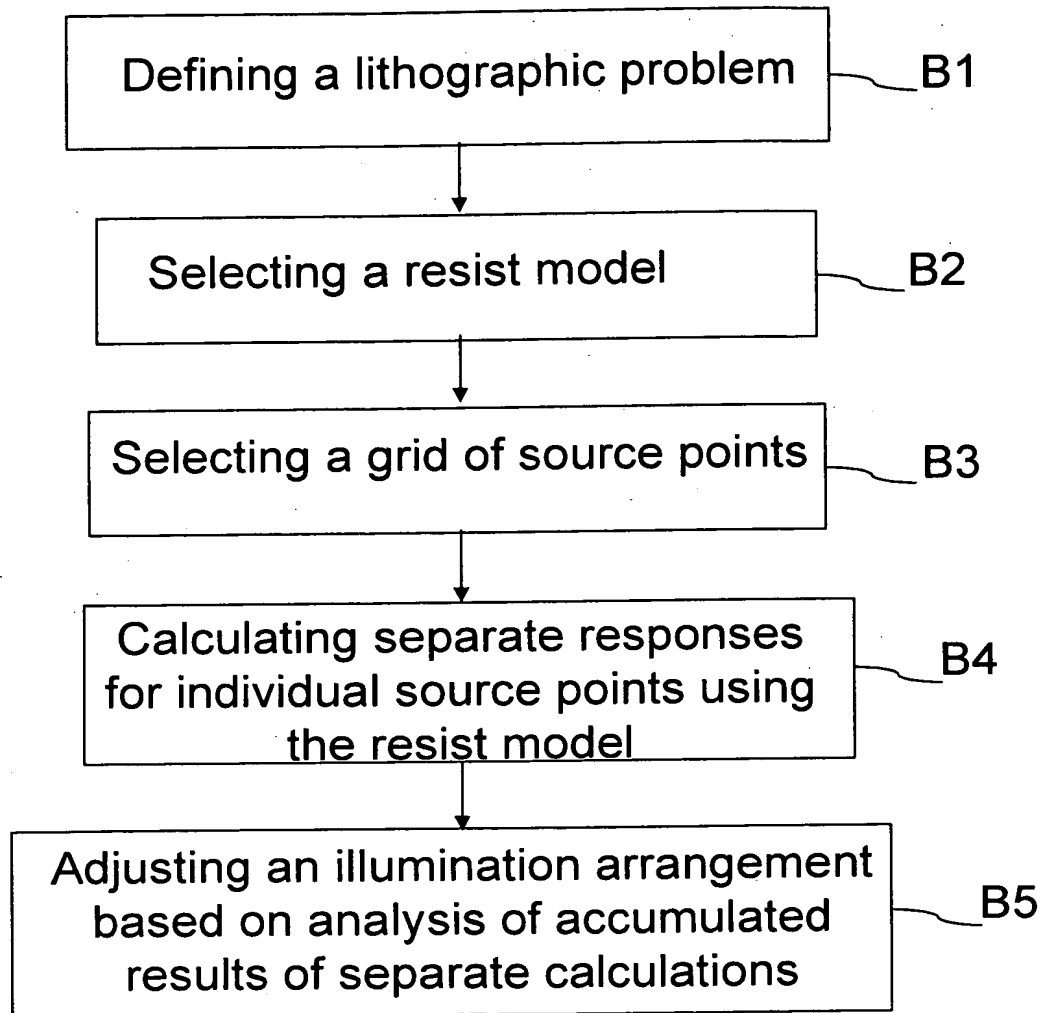


FIG. 16

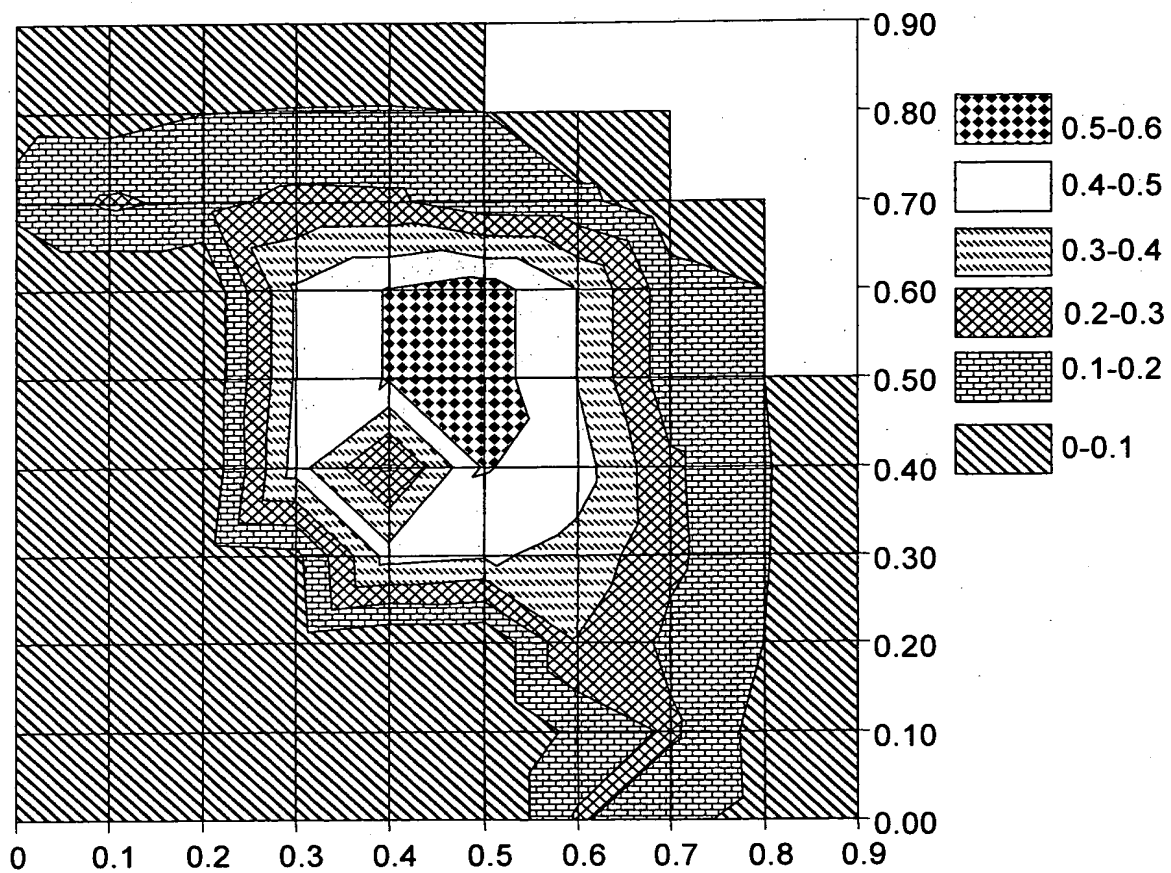


FIG. 17

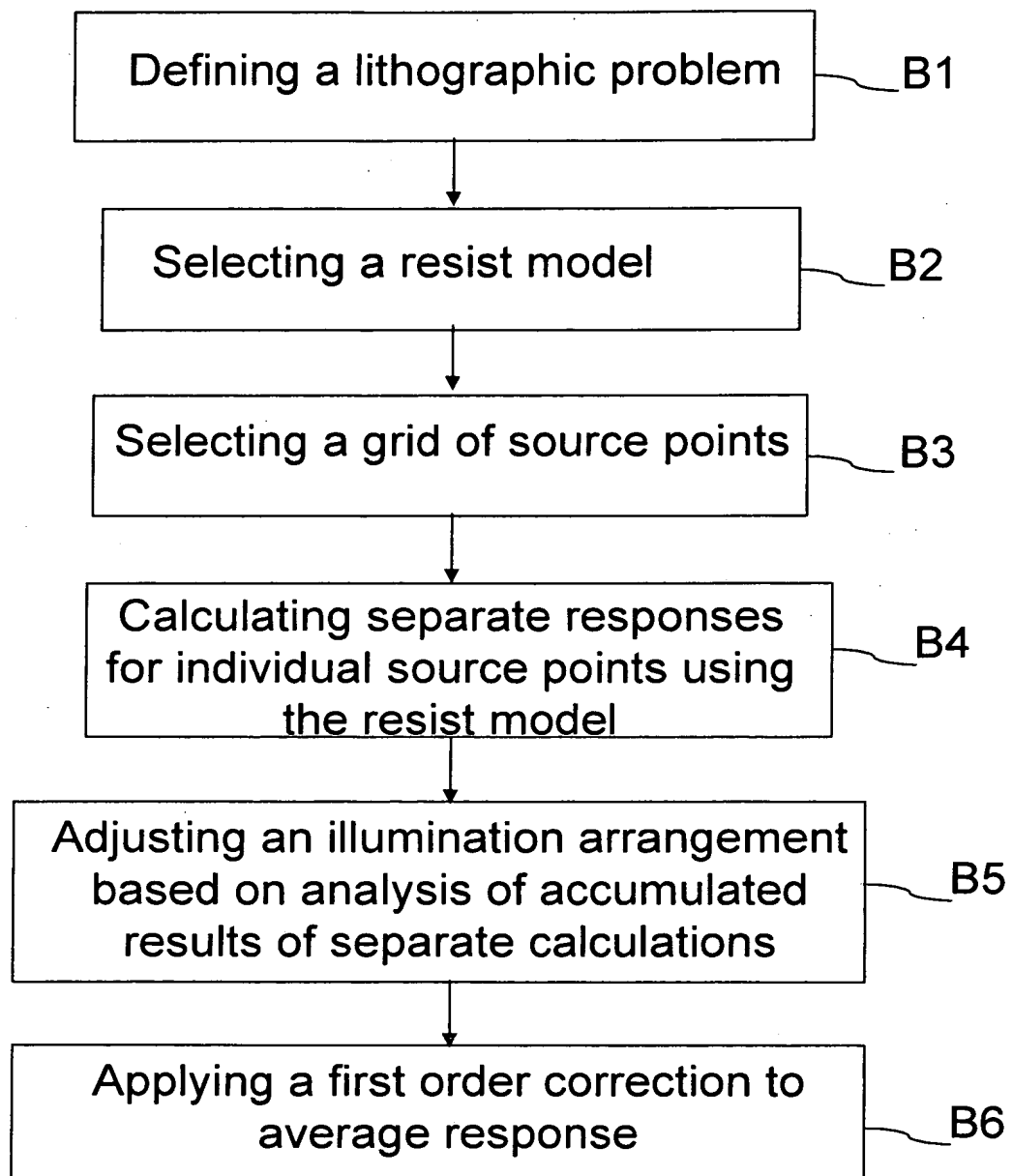


FIG. 18

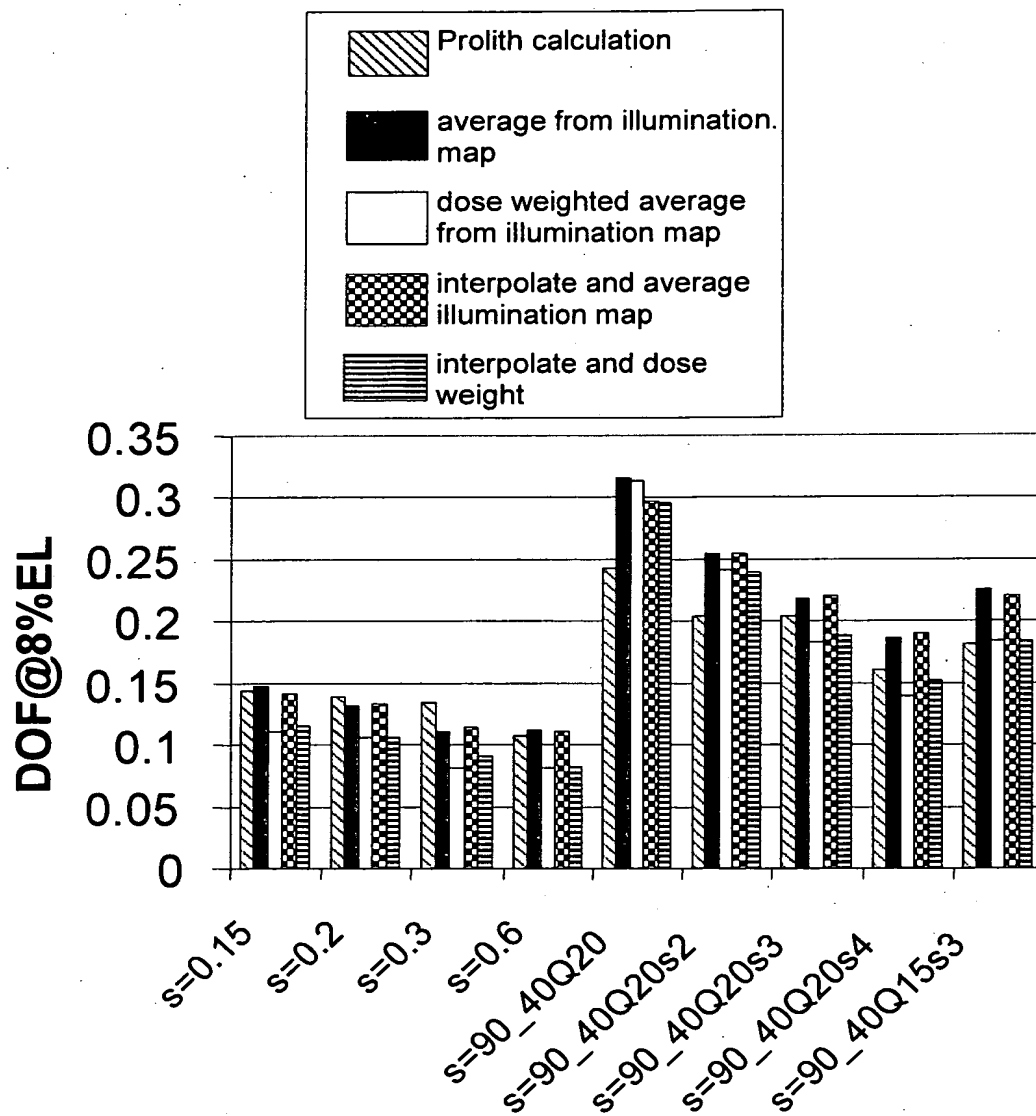


FIG. 19

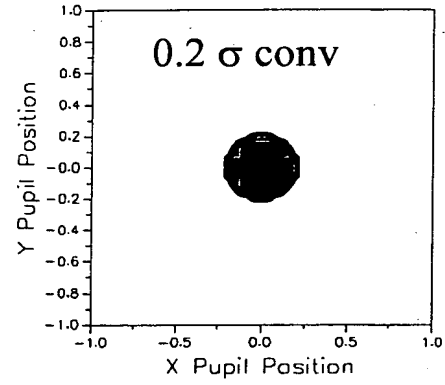
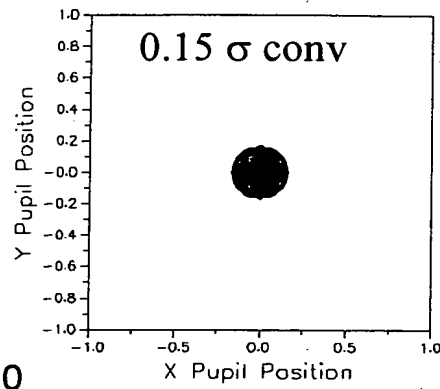
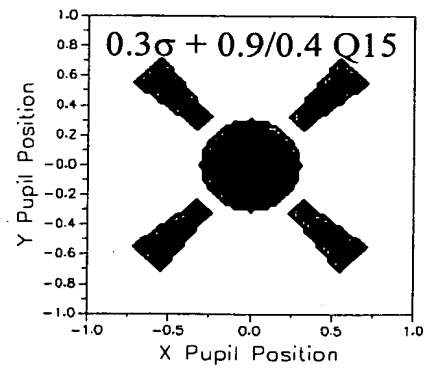
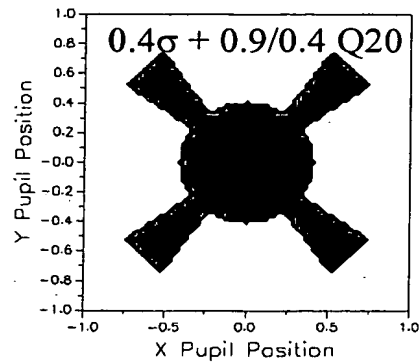
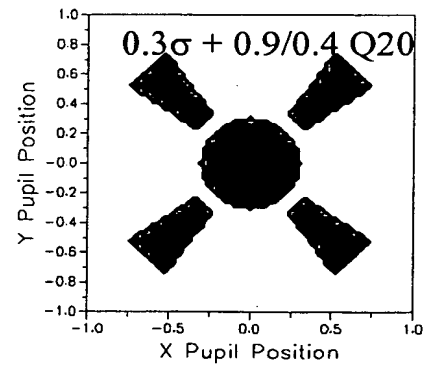
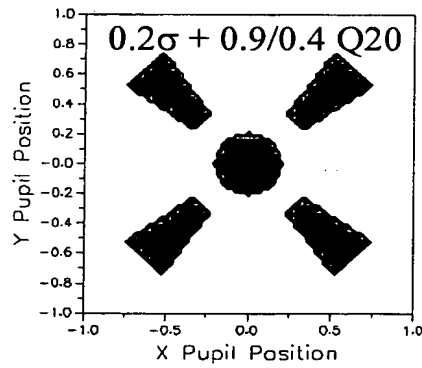
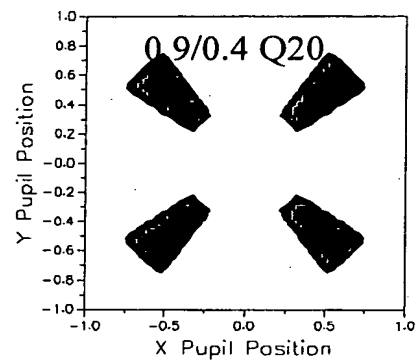
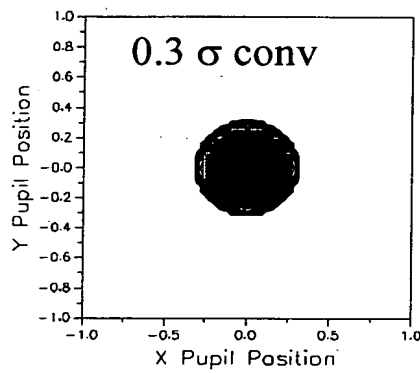


FIG. 20



trial illuminator	prediction based on weighted and interpolated source measurements	Prolith simulation with this illuminator
0.85_0.55Q30	0.293u	0.23u
0.75_0.55Q20	0.416	0.41
0.80_0.60Q20	0.383	0.355
0.80_0.60annular	0.110	0.10
0.75_0.55annular	0.118	0.105

FIG. 21

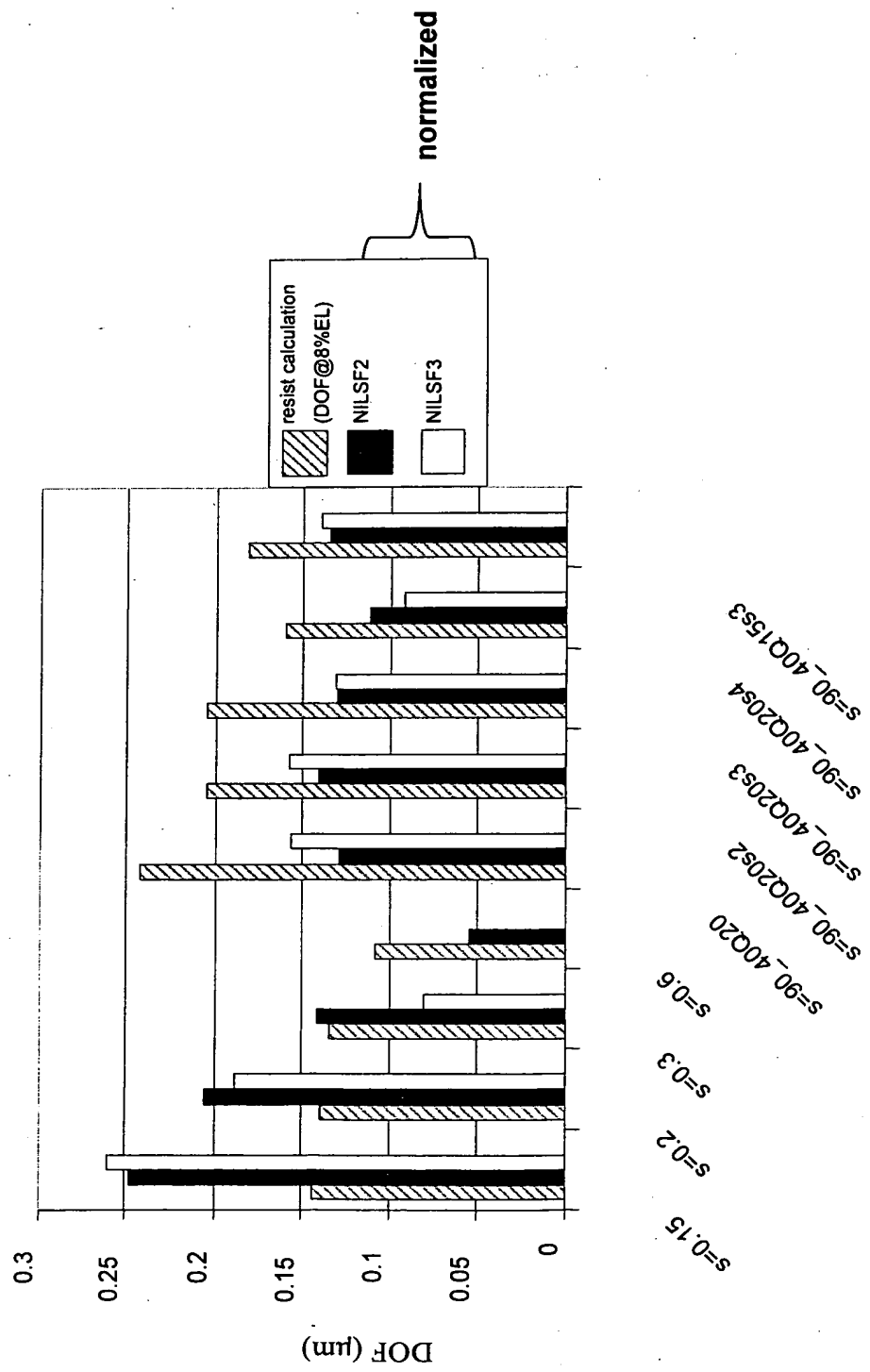


FIG. 22

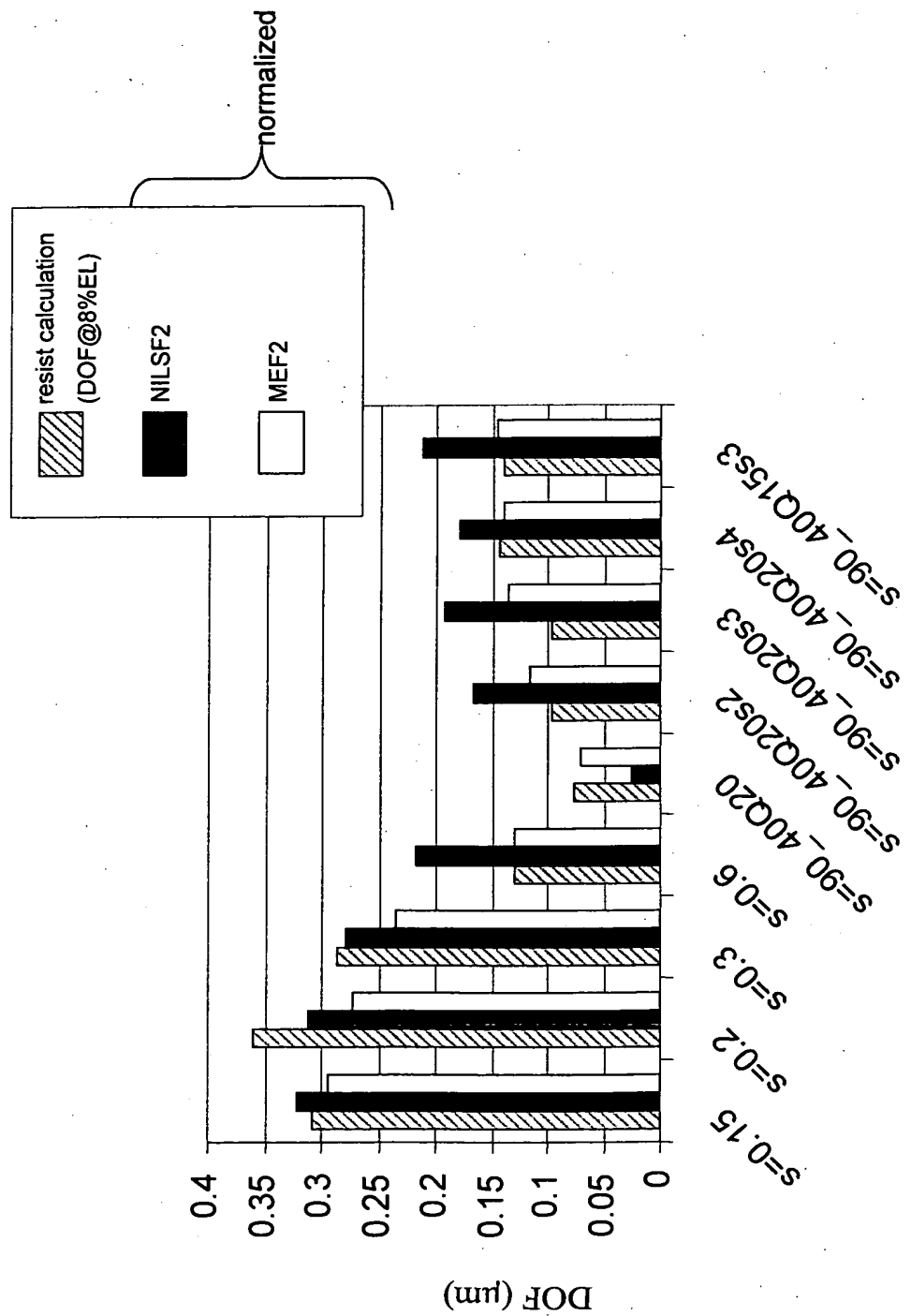


FIG. 23

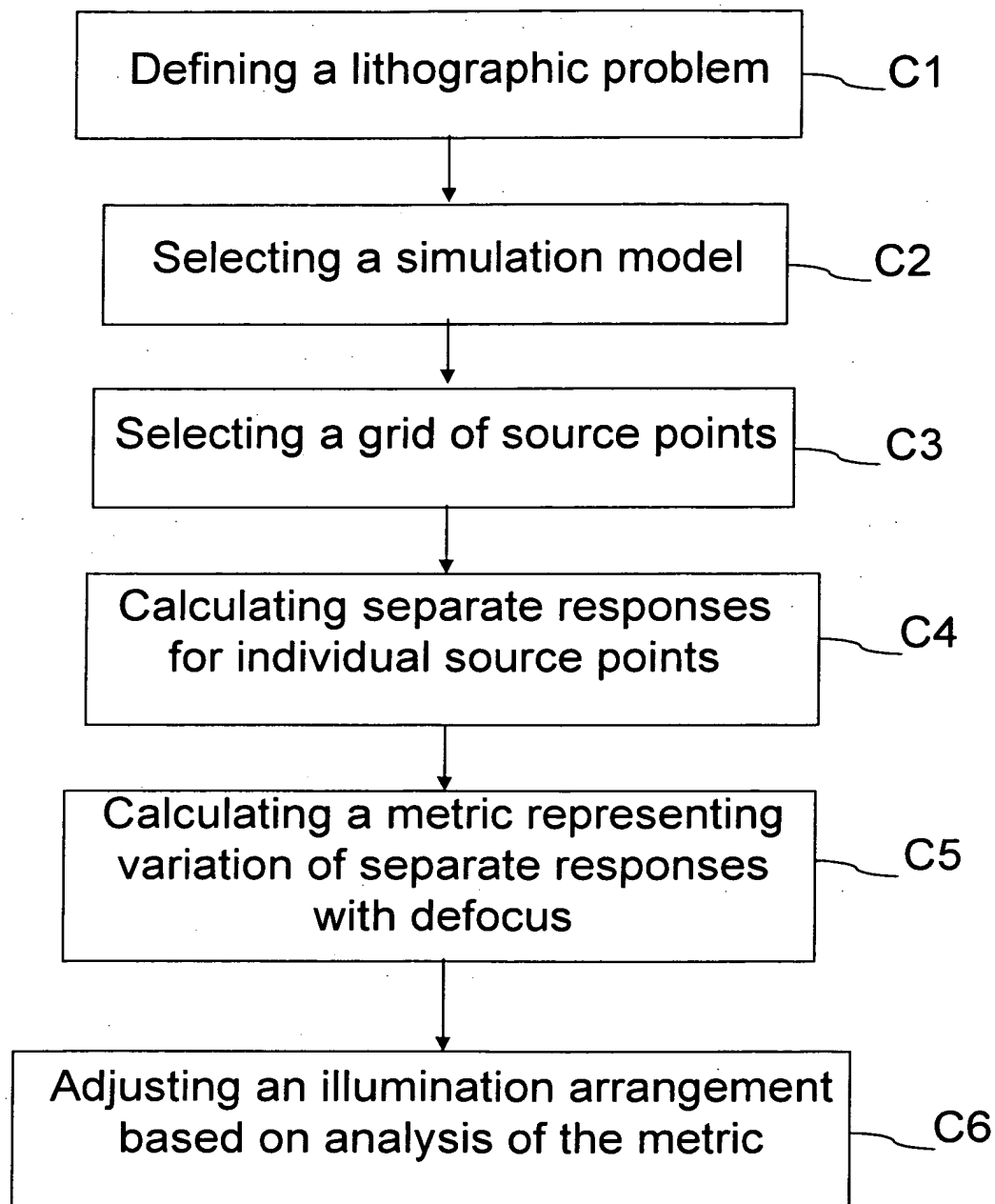


FIG. 24

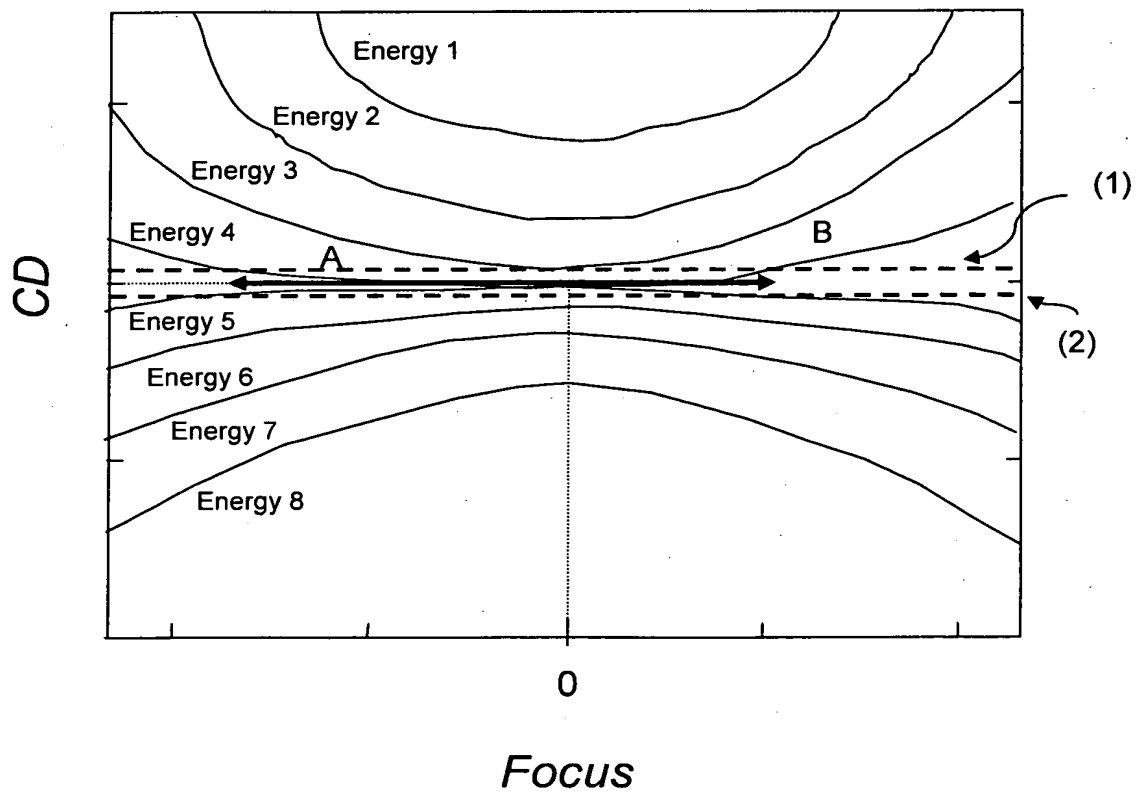


FIG. 25

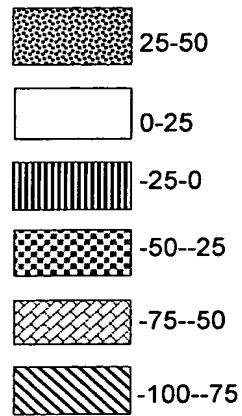


FIG. 26a

isofocal curvature

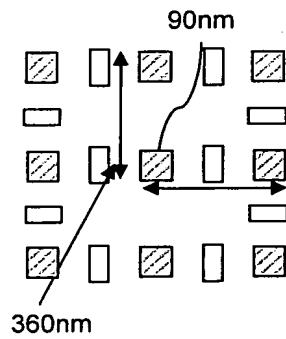
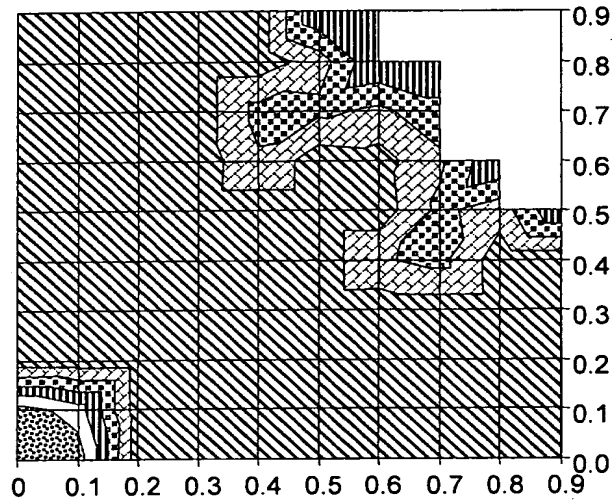


FIG. 26c

mask edge intensity change with defocus

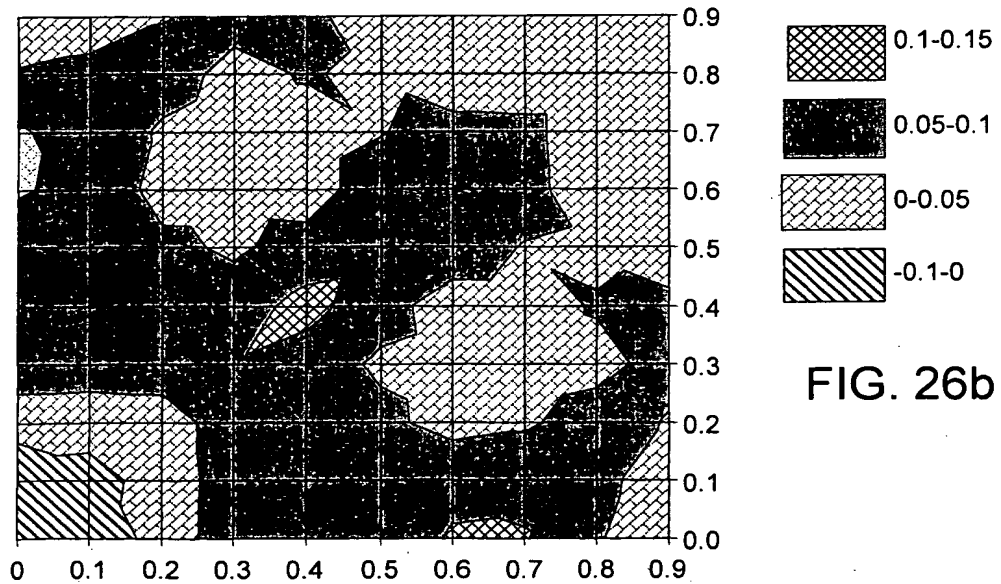


FIG. 26b

FIG. 27a

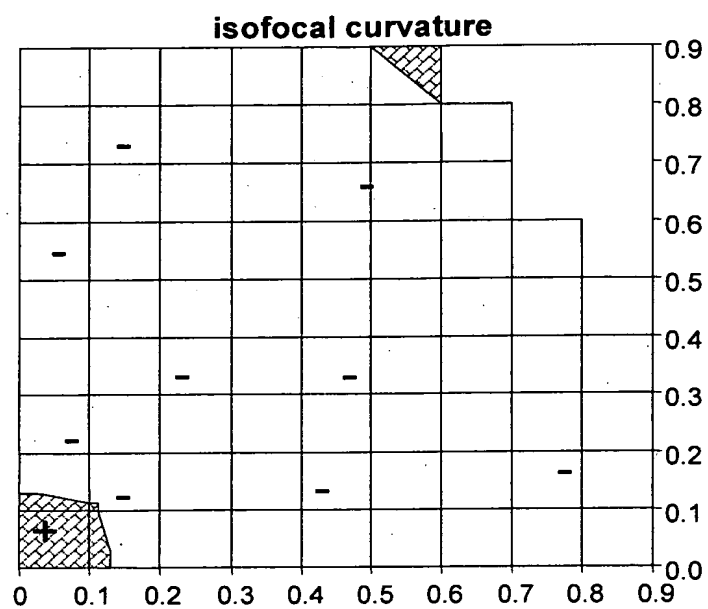


FIG. 27b

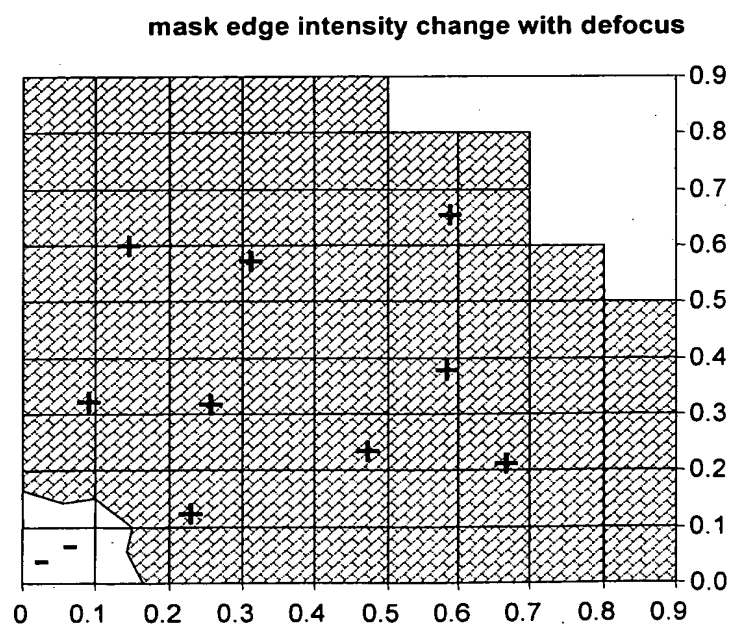


FIG. 28

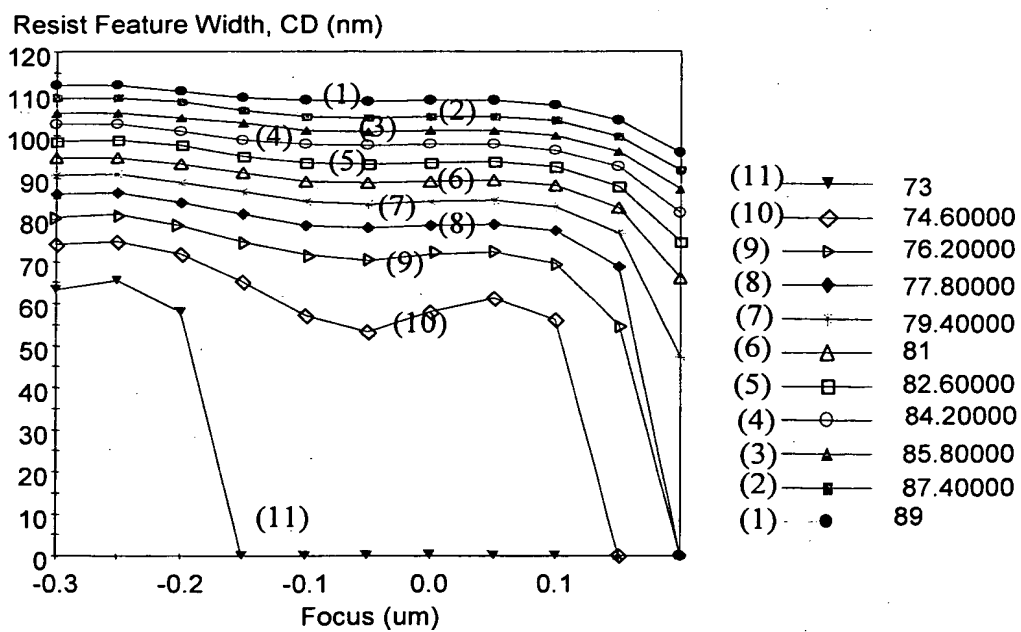
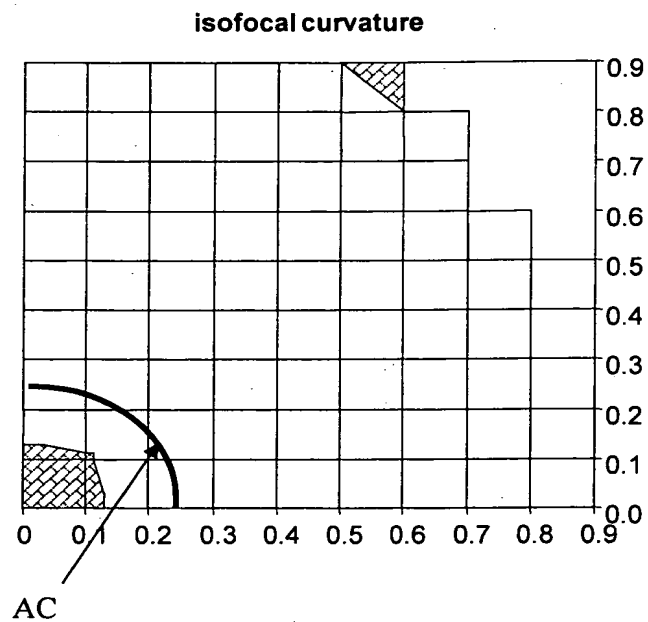


FIG. 29

FIG. 30a

max EL

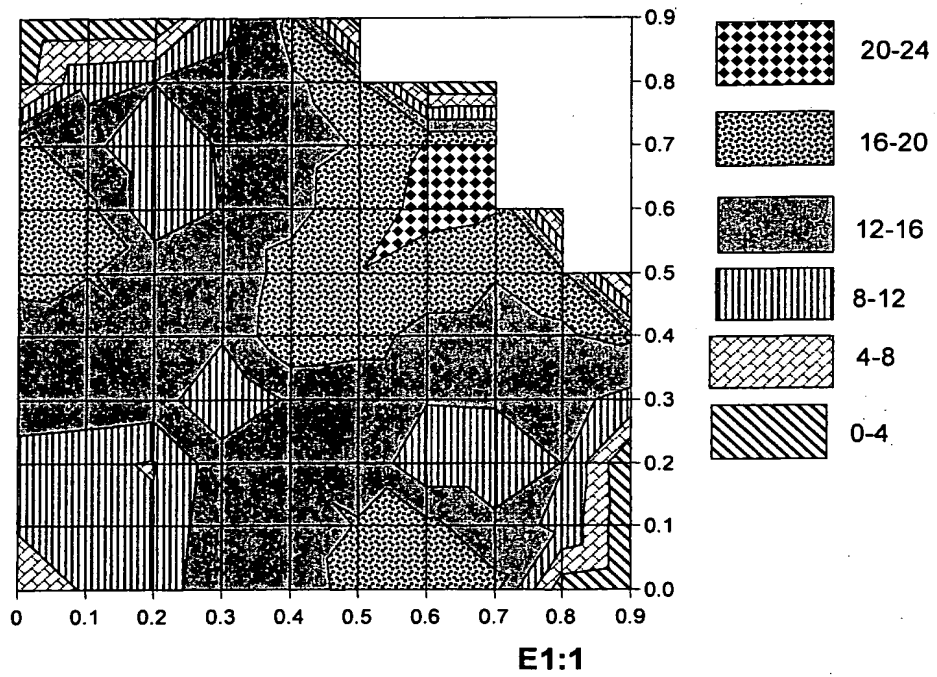


FIG. 30b

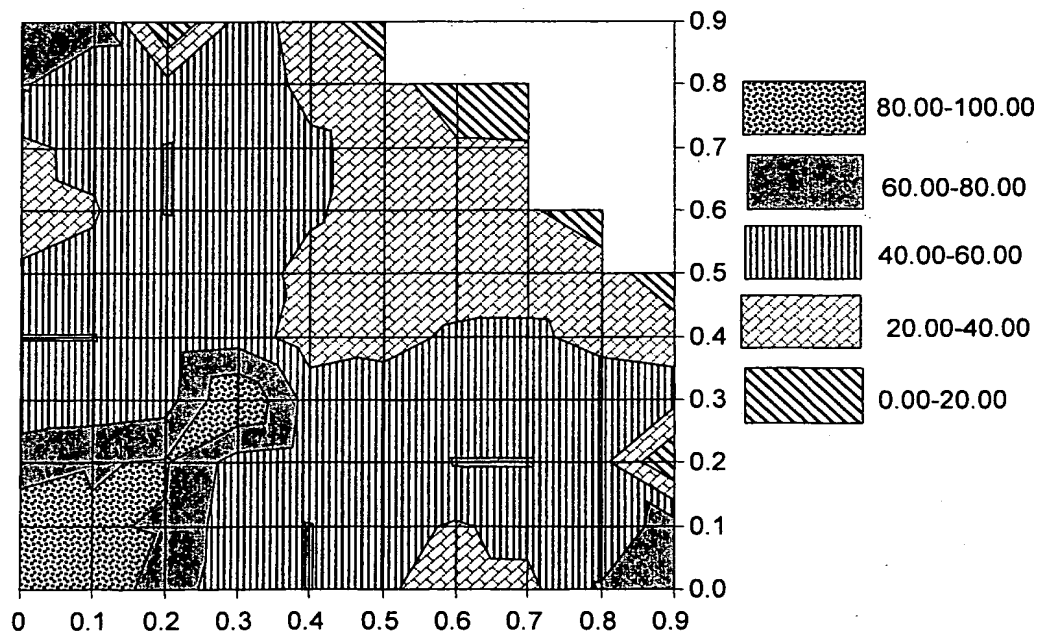


FIG. 31

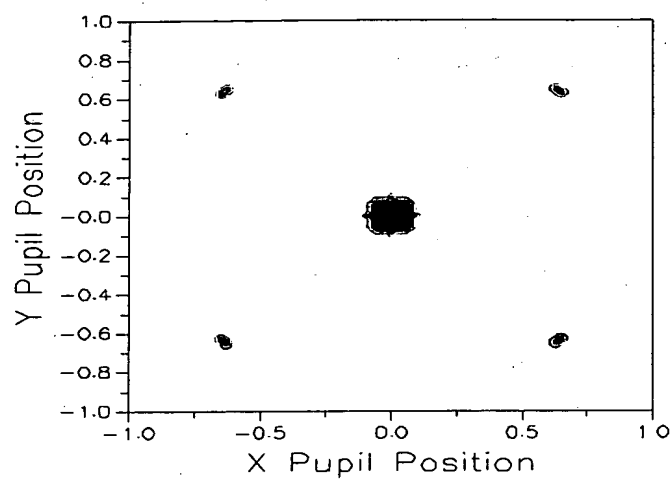


FIG. 32

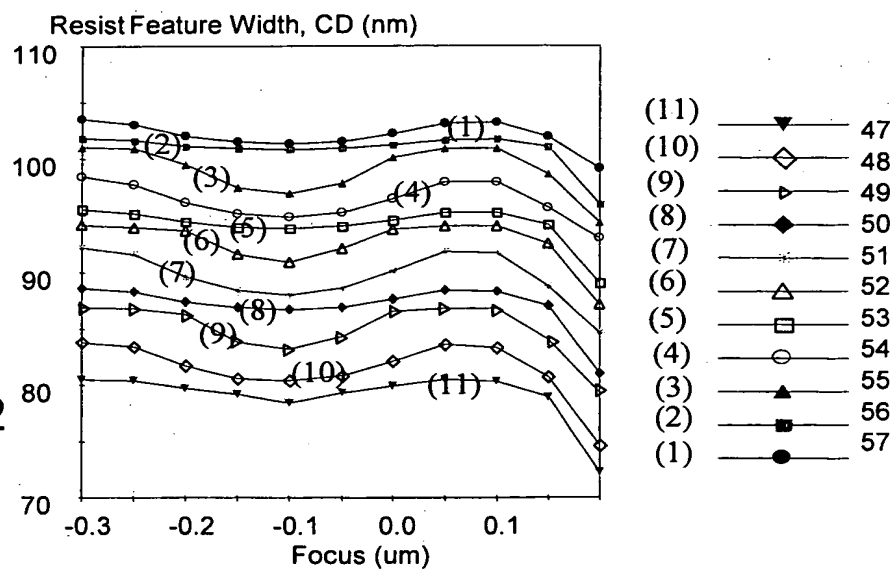


FIG. 33

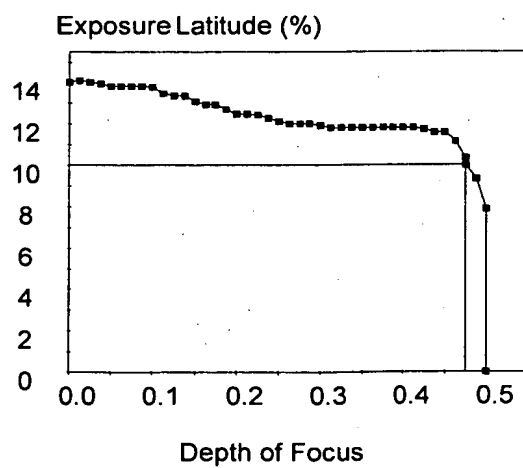


FIG. 34

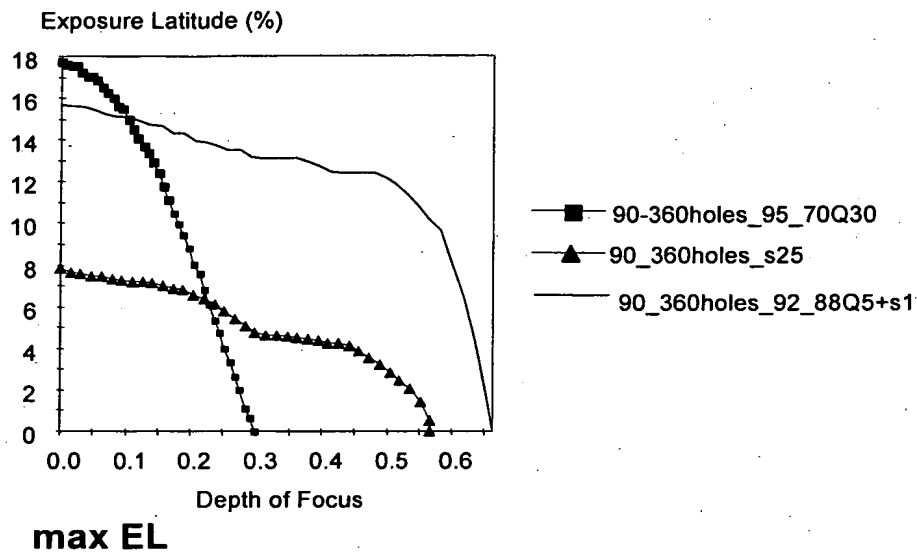


FIG. 35a

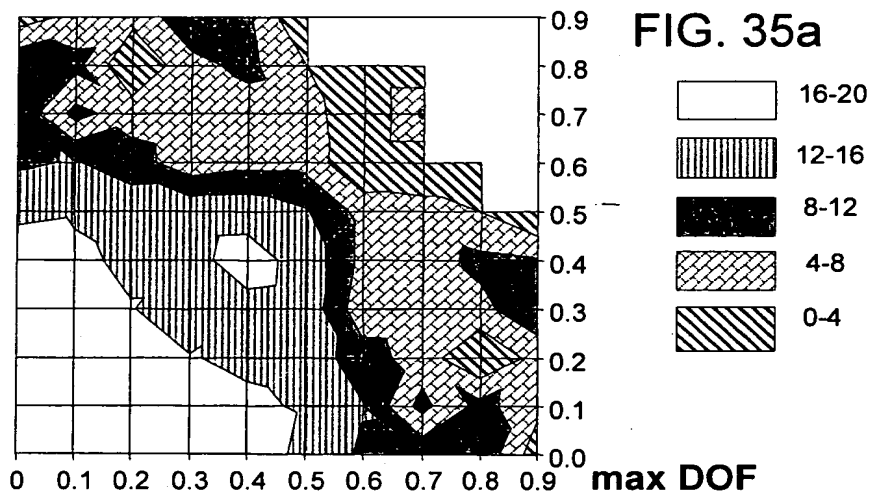


FIG. 35b

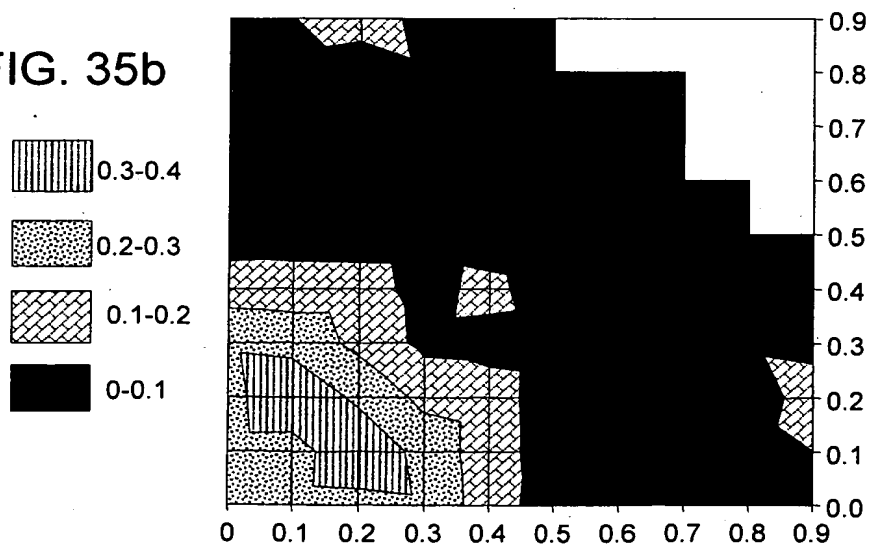


FIG. 35c **DOF@8%EL**

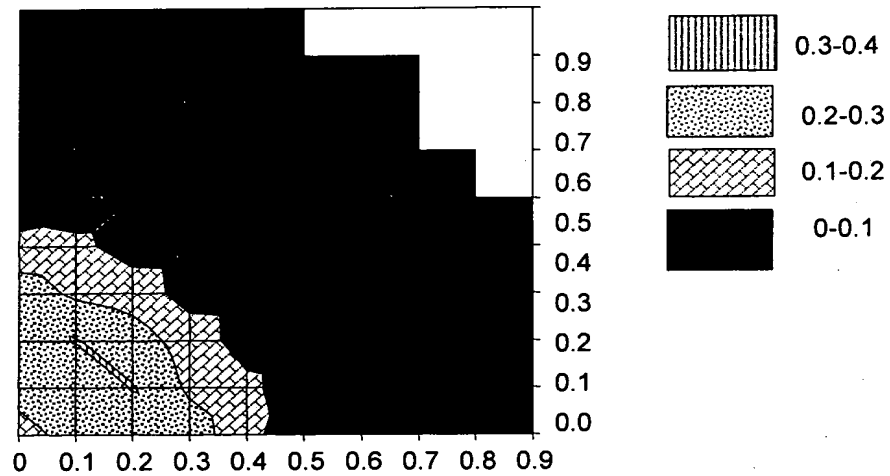
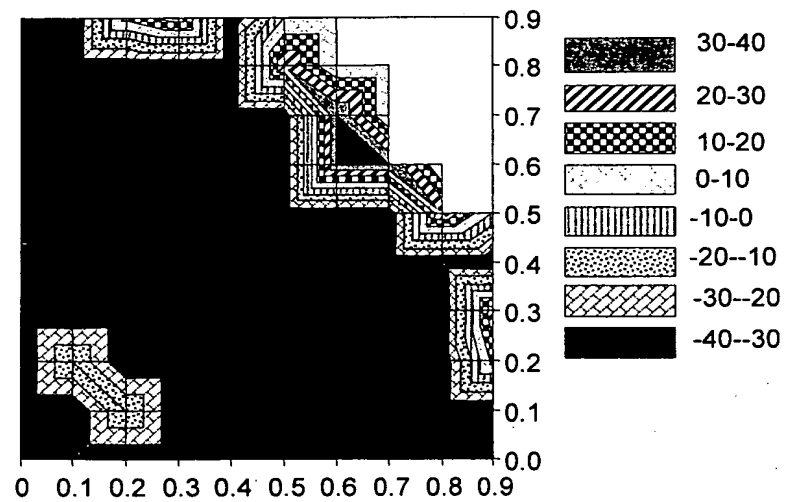


FIG. 35d **isofocal curvature**



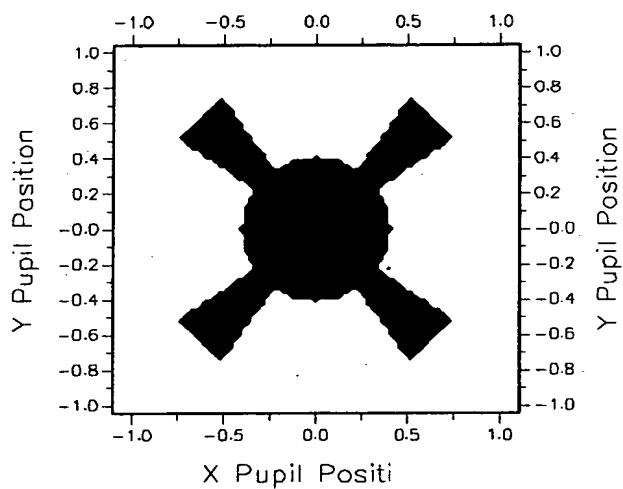
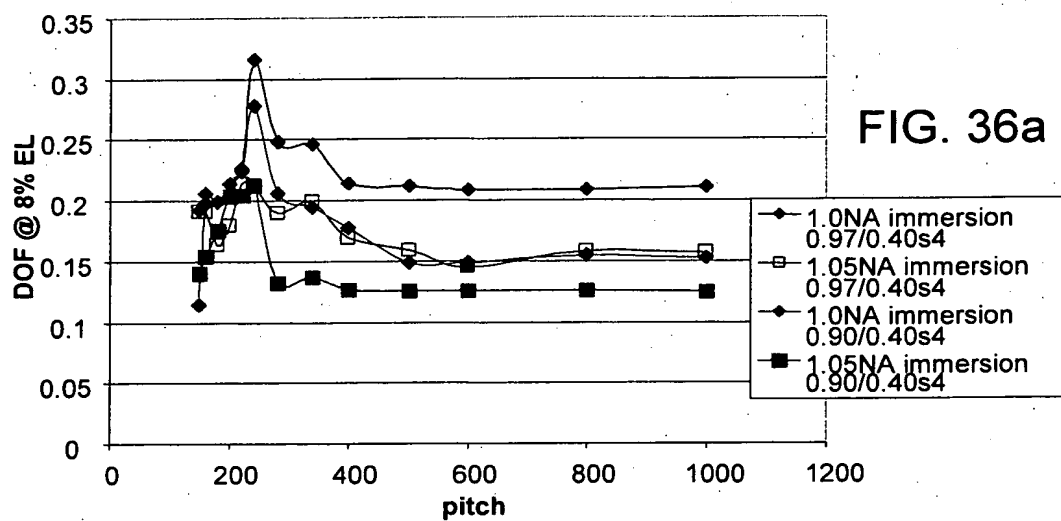
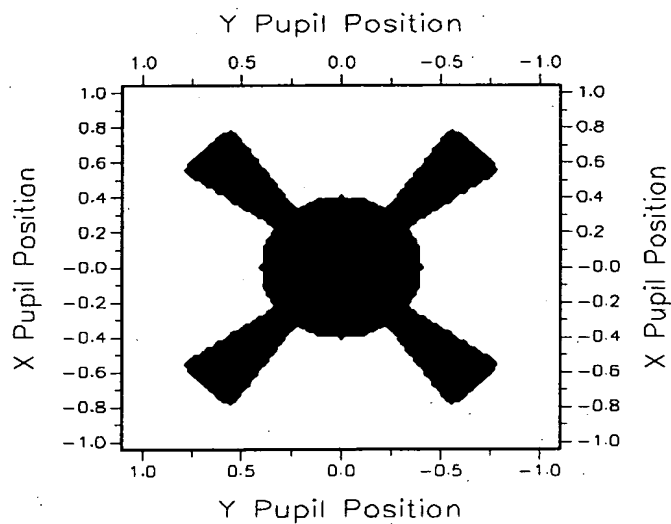


FIG. 36c



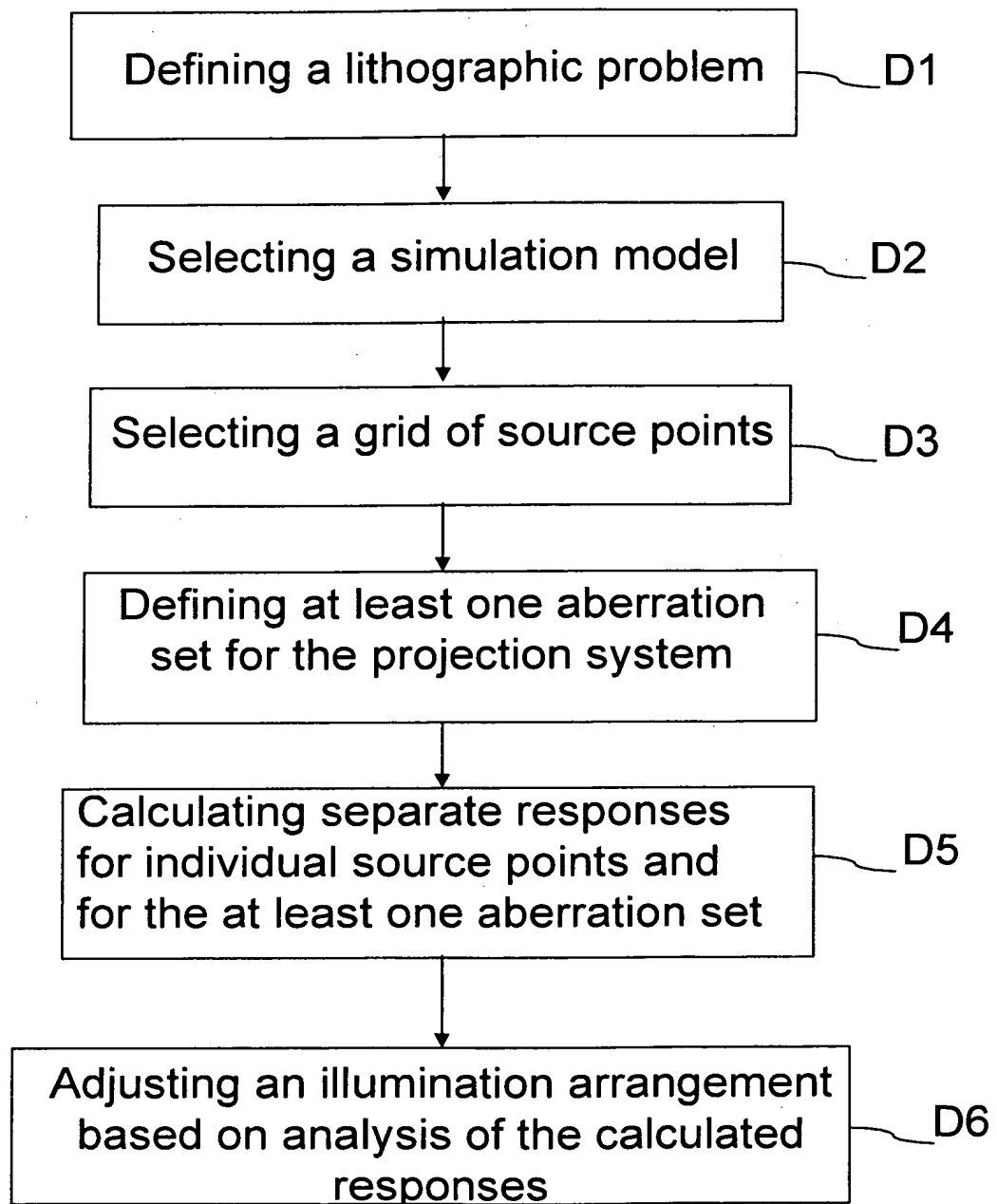


FIG. 37

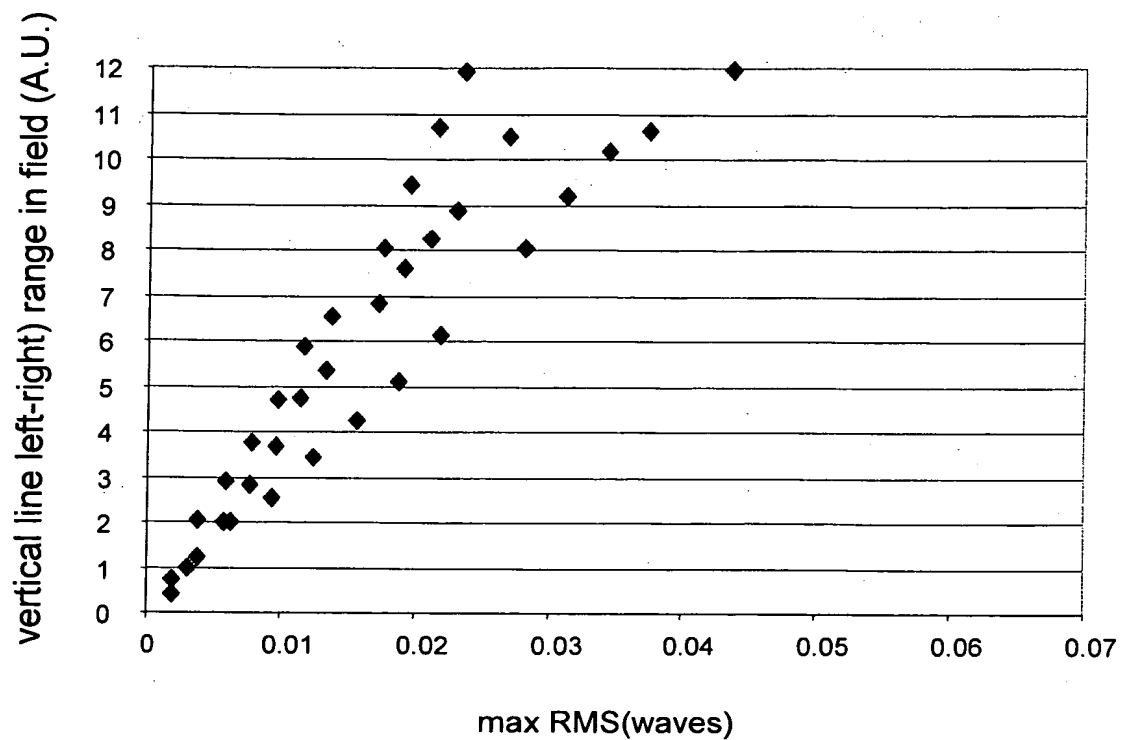


FIG. 38a

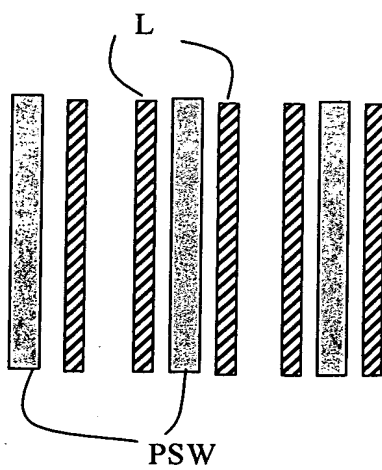


FIG. 38b

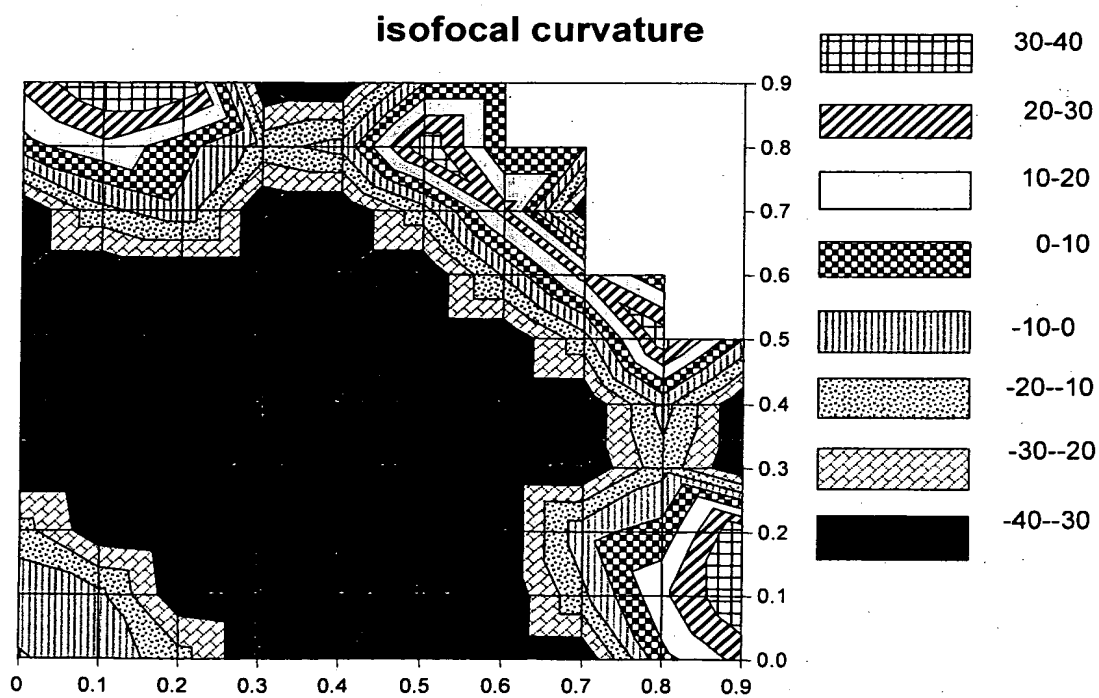
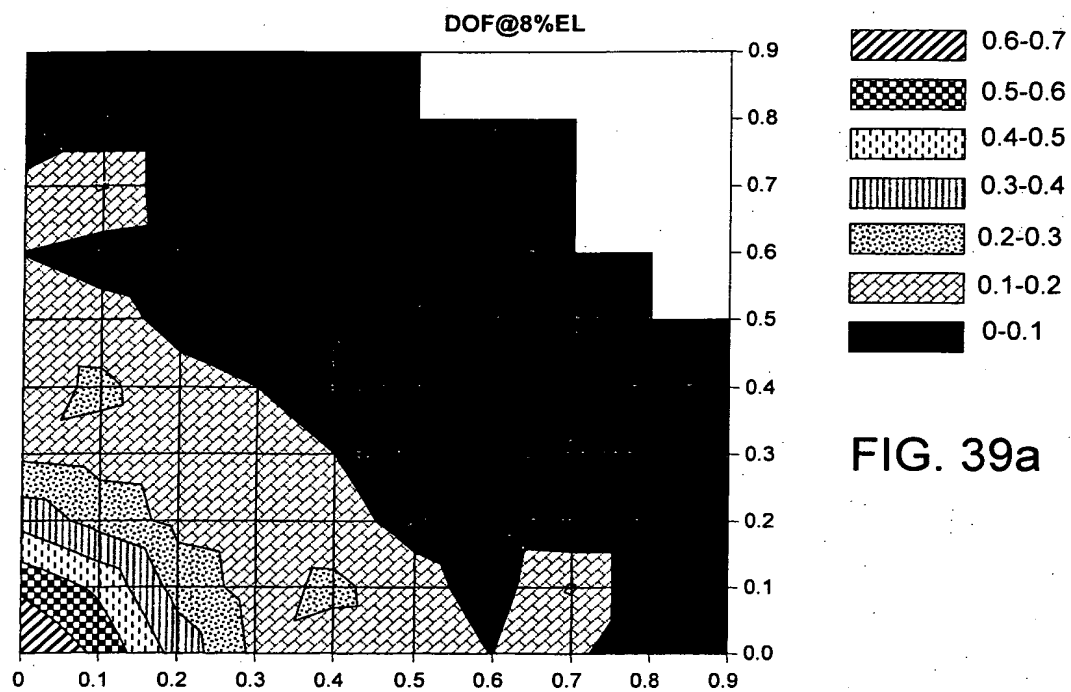


FIG. 39b

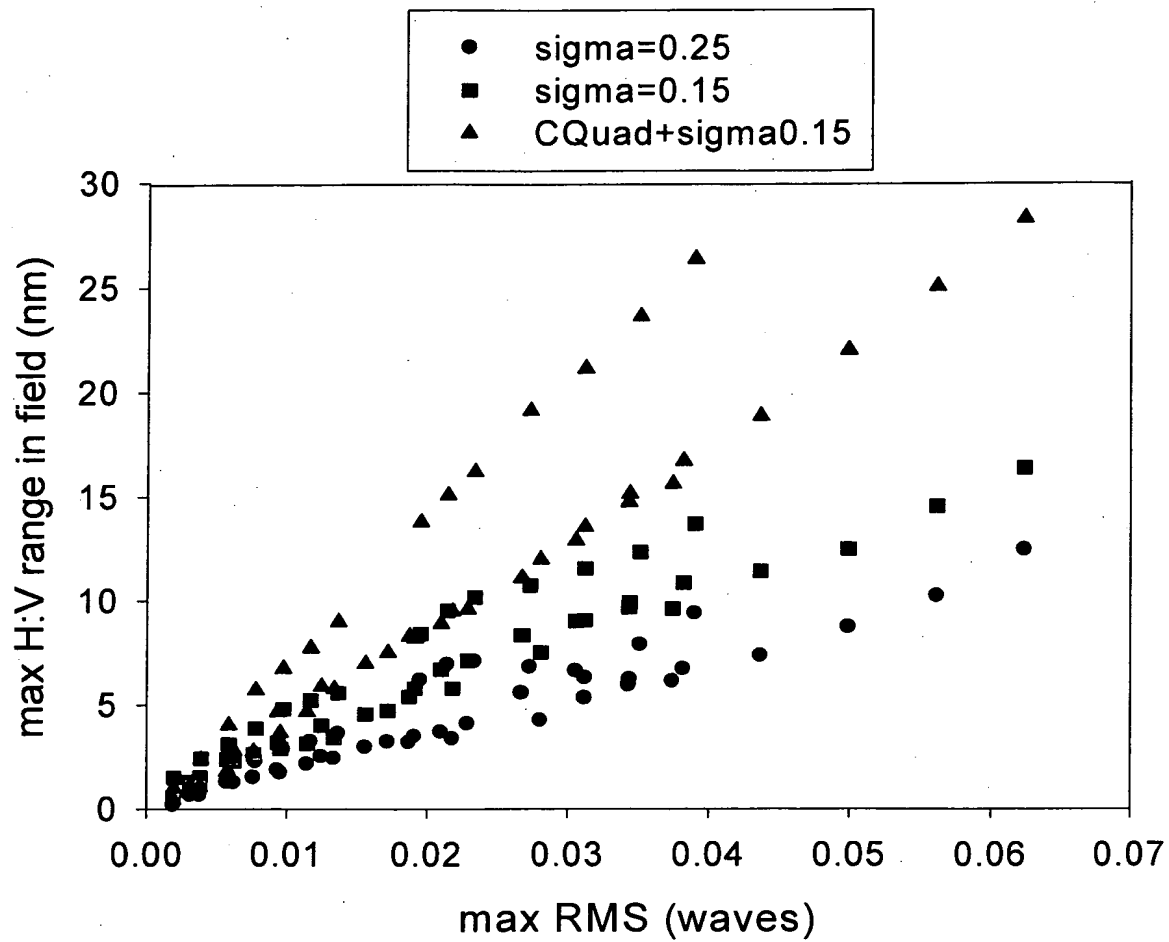
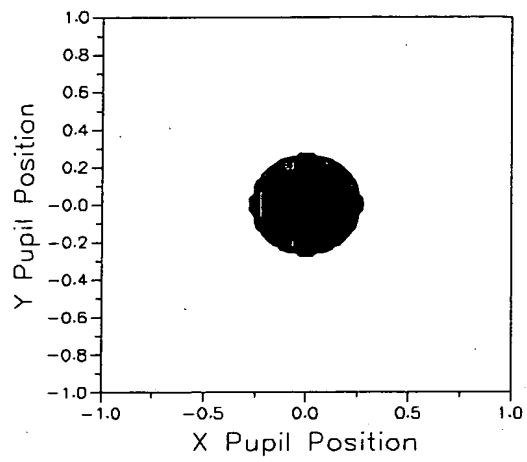
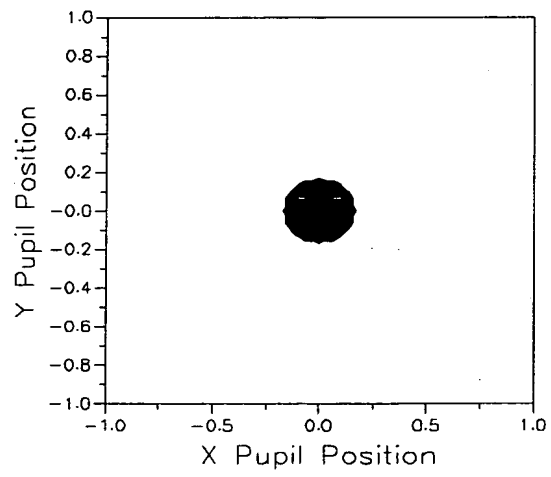


FIG. 40

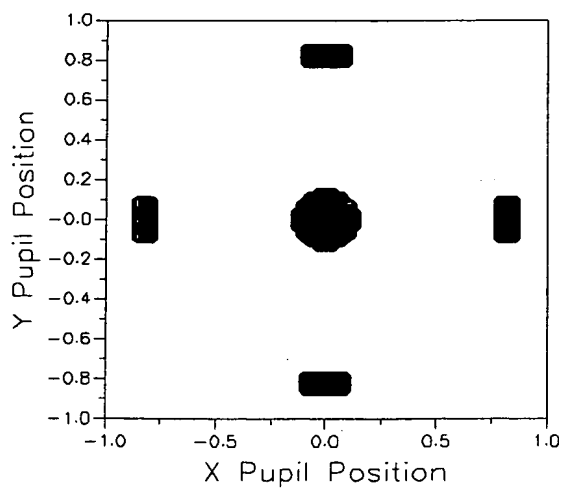


(a)



(b)

FIG. 41



(c)

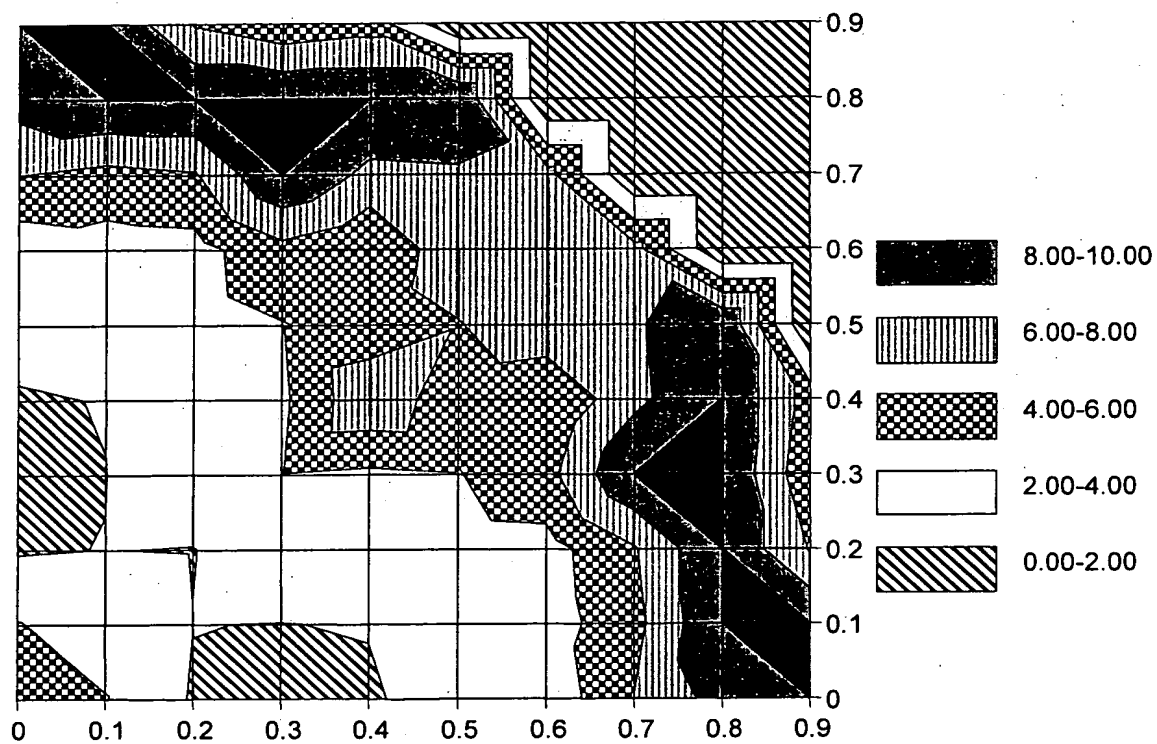


FIG. 42

DOF@8%EL

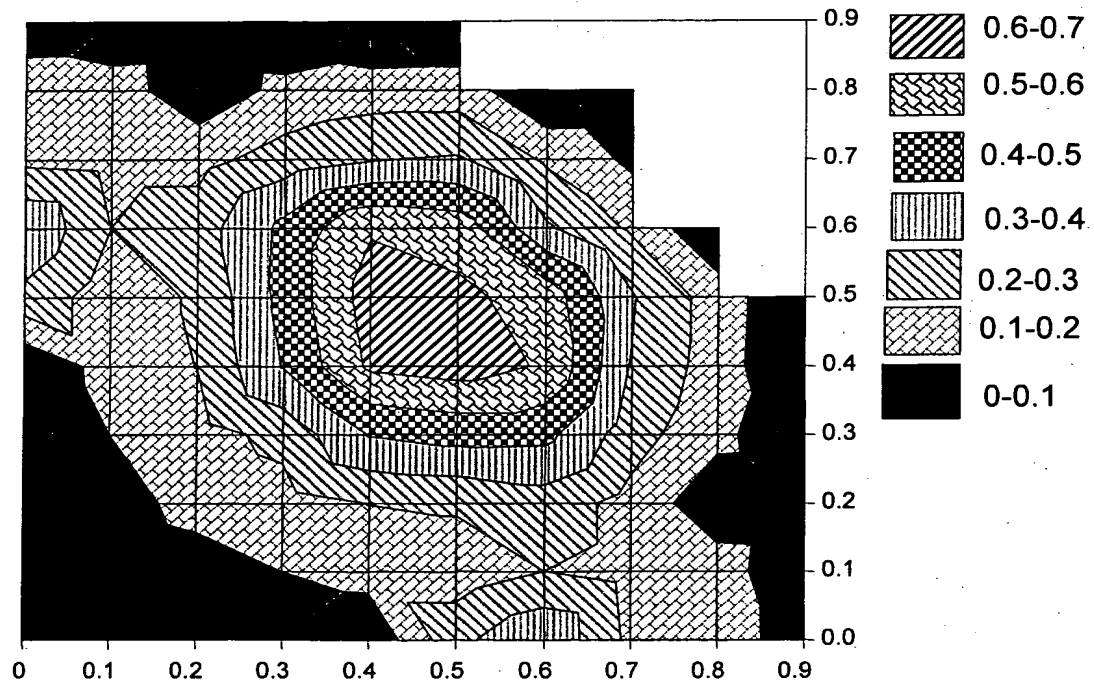


FIG. 43

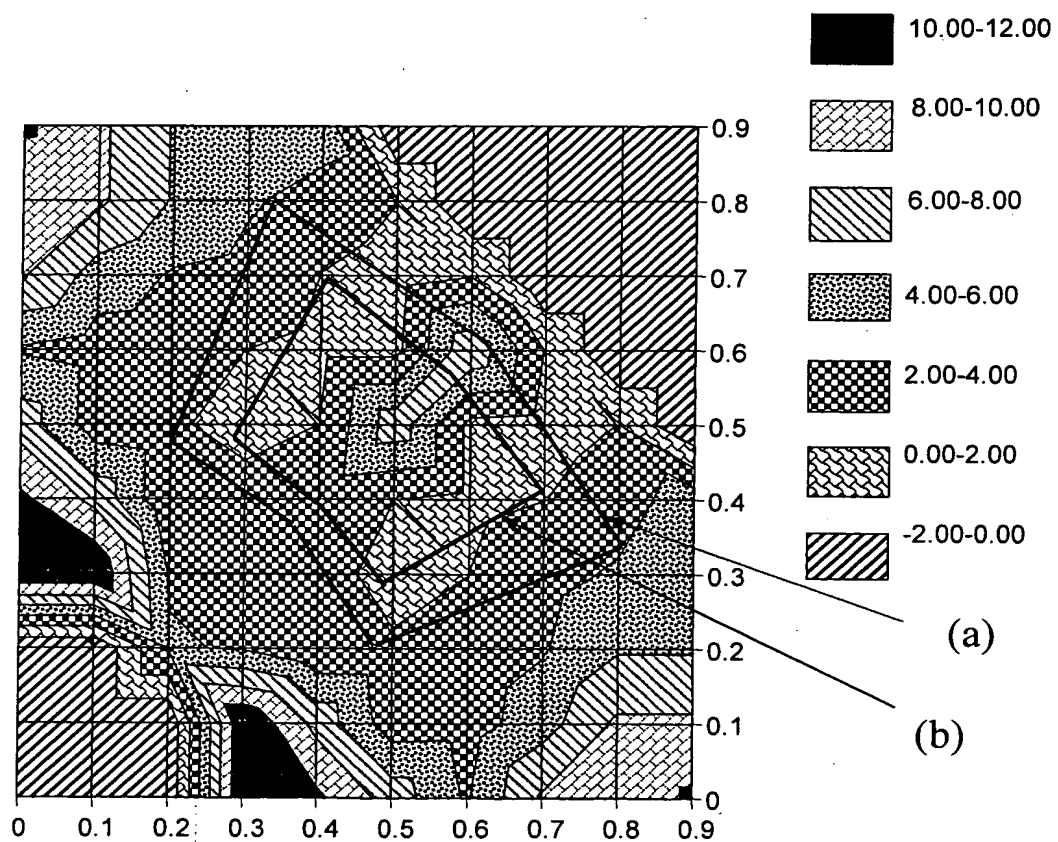


FIG. 44

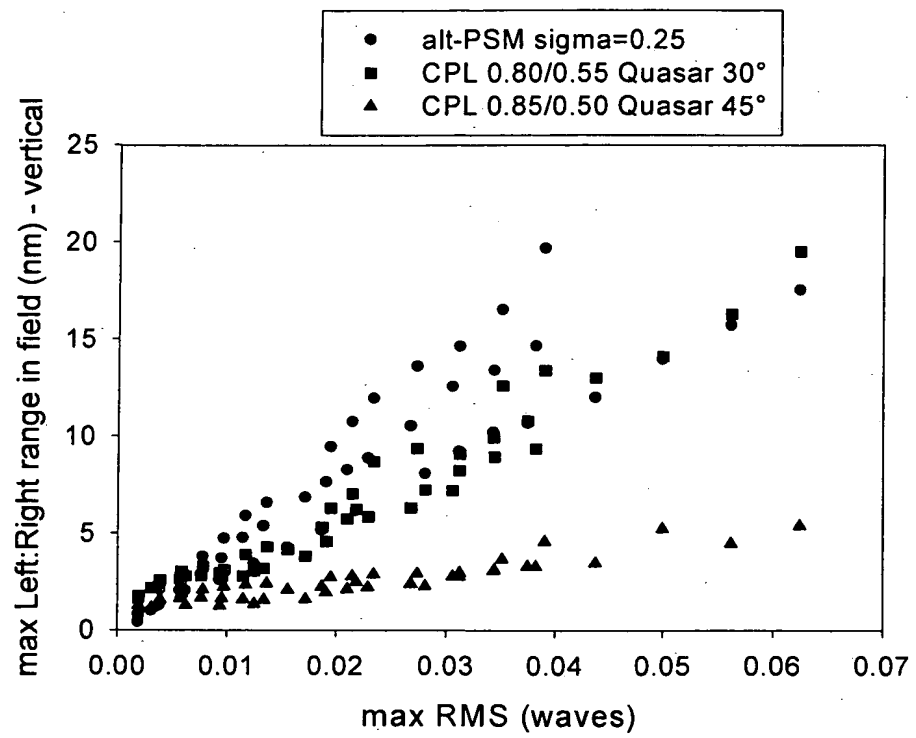


FIG. 45

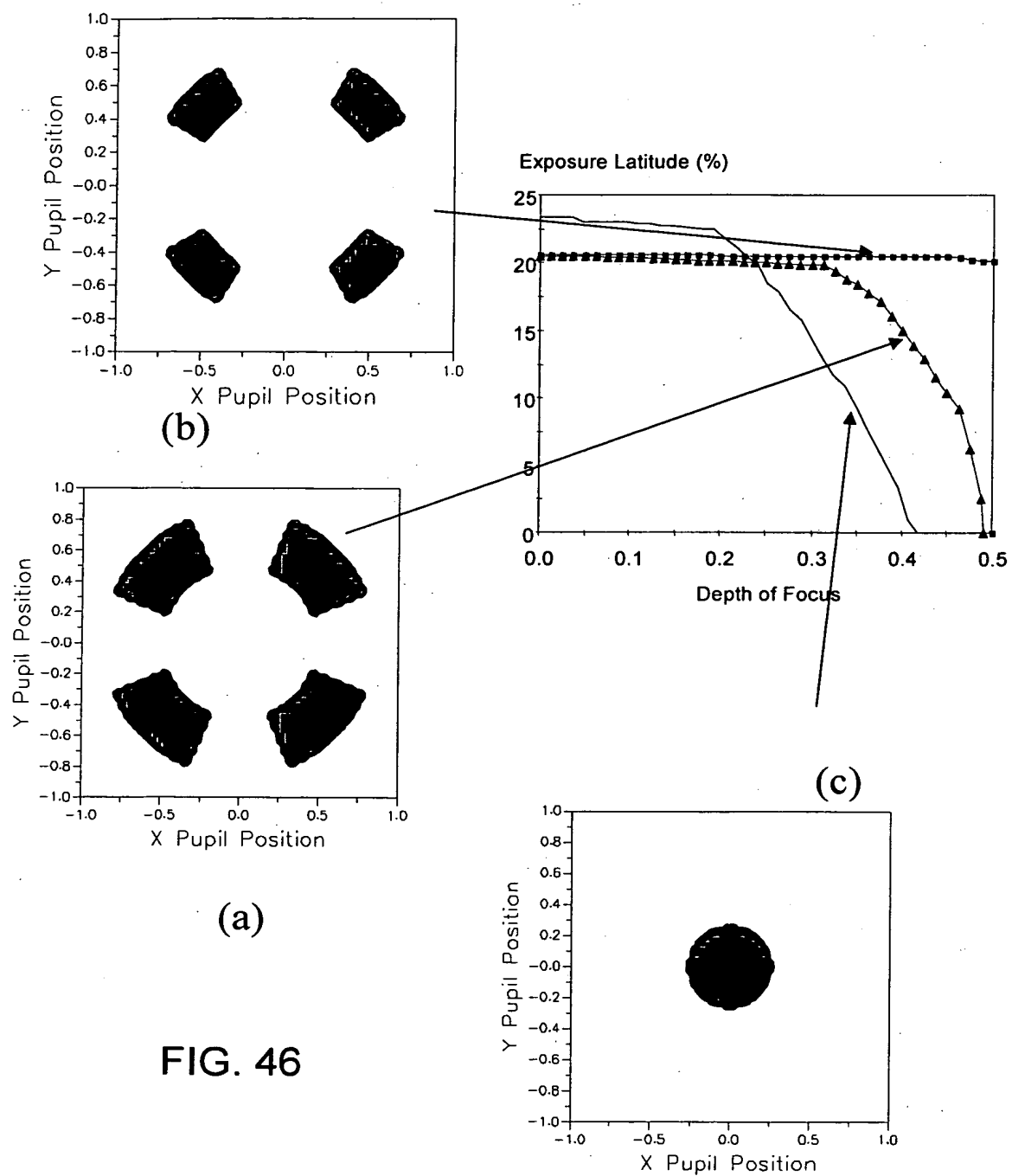


FIG. 46

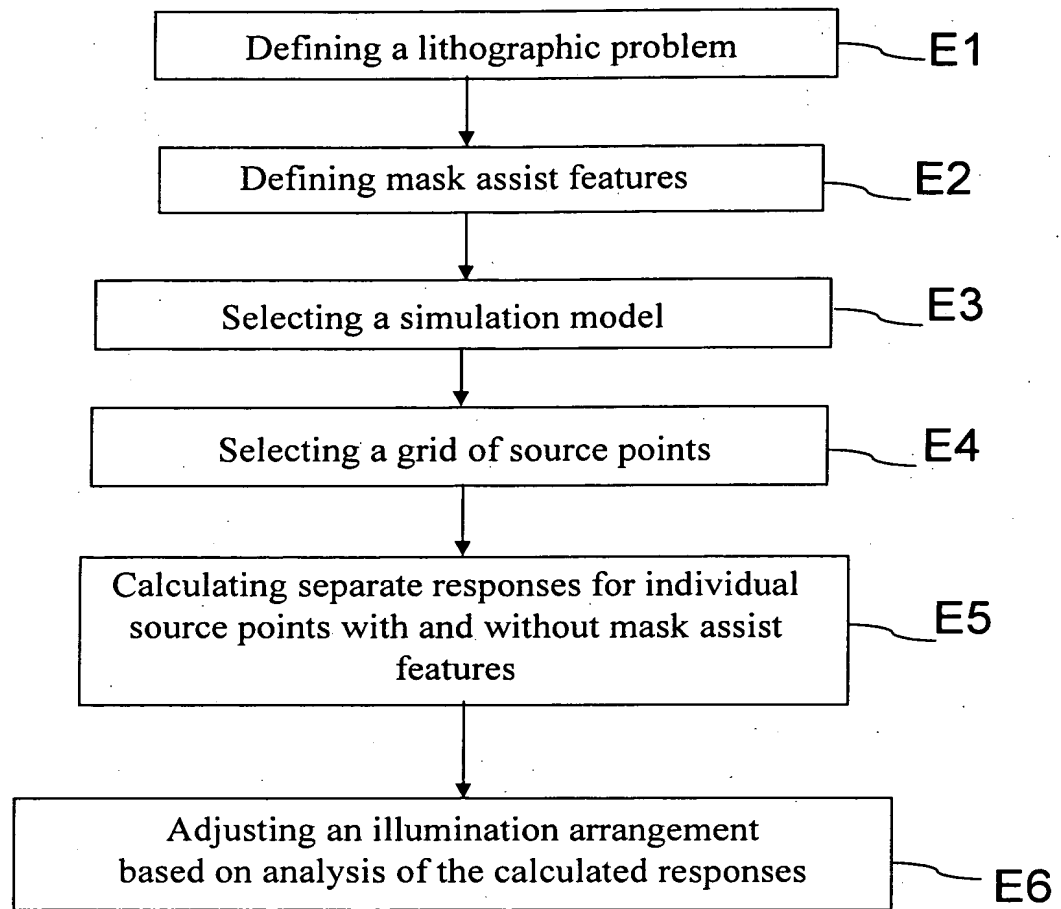


FIG. 47

FIG. 48

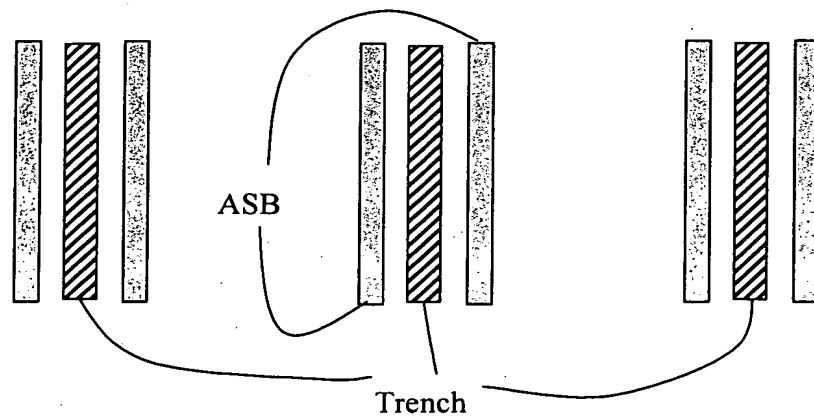


FIG. 49a

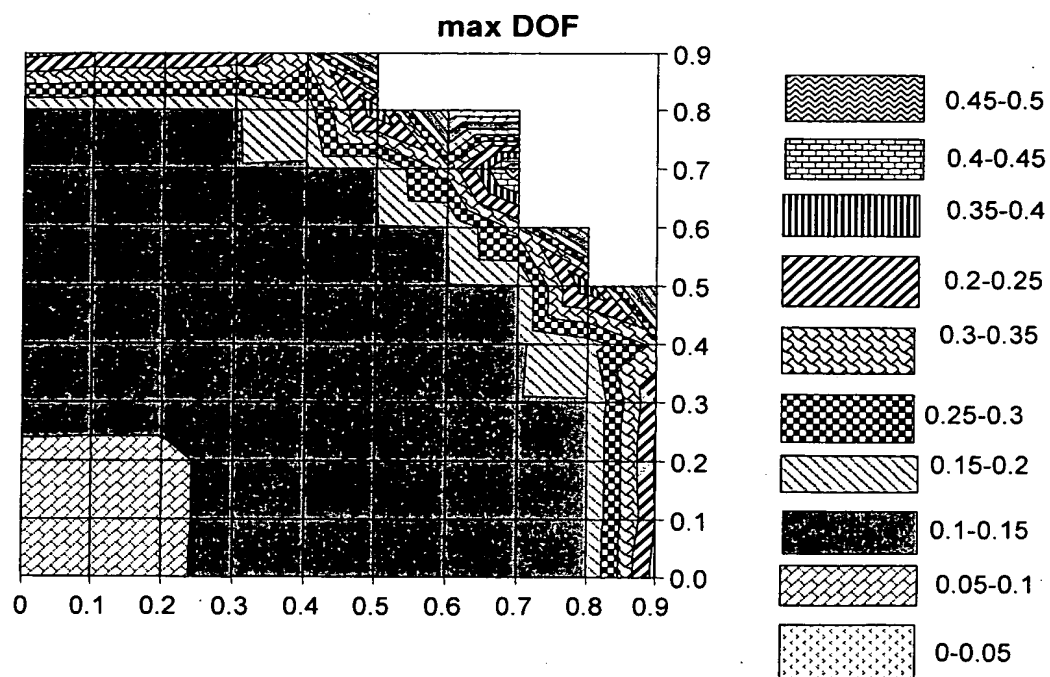
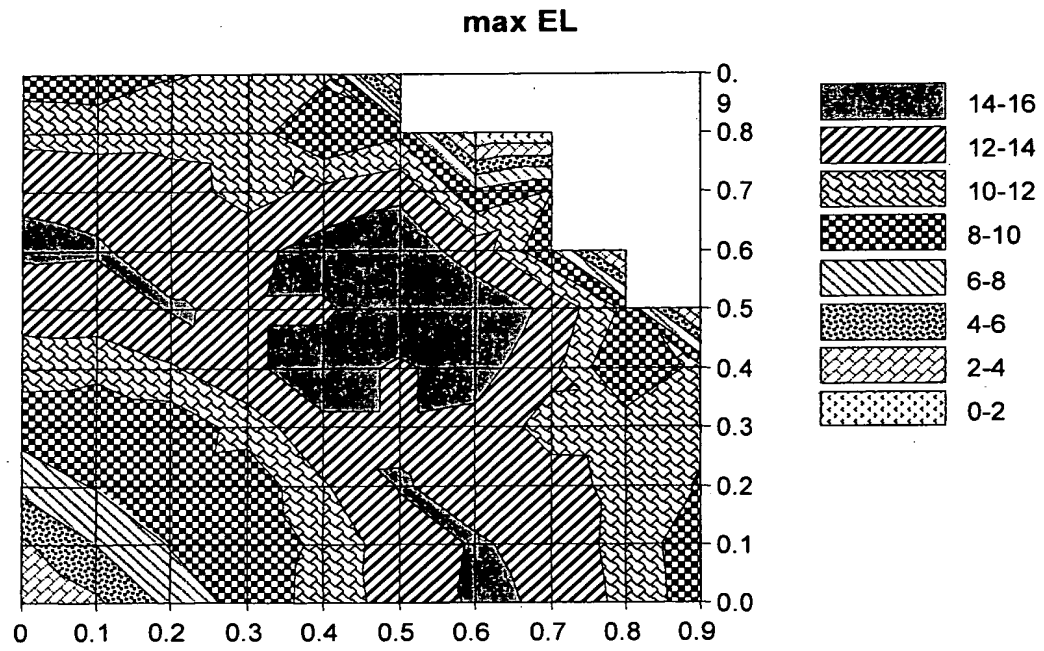


FIG. 49b



Exposure Latitude (%)

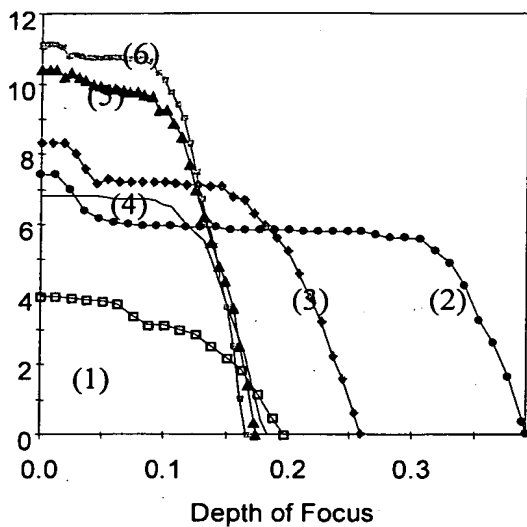


FIG. 50

Illumination

- (6) —●— 1SB_150_90_70CQ30
- (5) —▲— 1SB_160_90_70CQ30
- (4) —■— 1SB_180_90_70CQ30
- (3) —●— 1SB_150_95_85CQ22.5
- (2) —●— 1SB_160_95_85CQ22.5
- (1) —□— 1SB_180_95_85CQ22.5

Pitch

FIG. 51a

max DOF

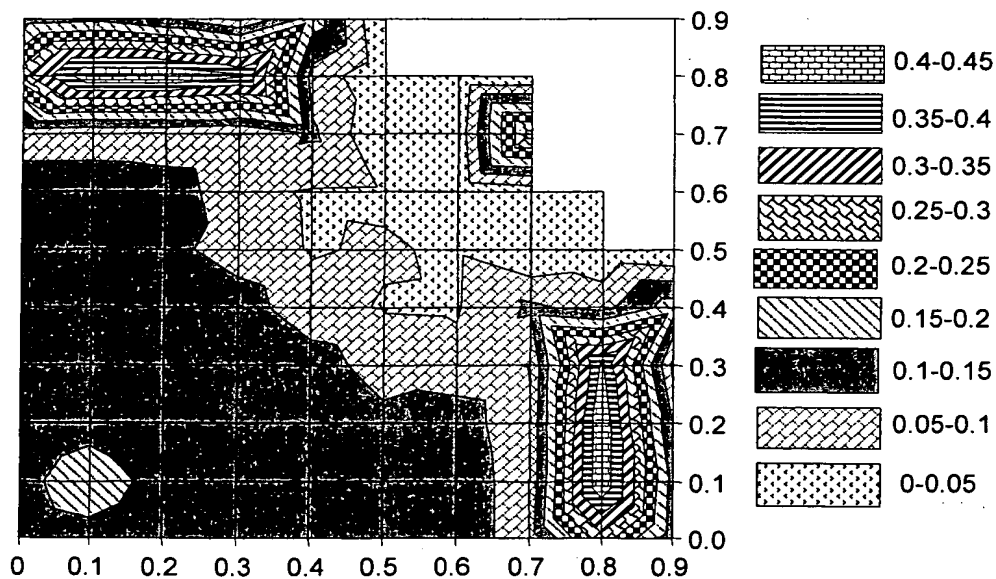
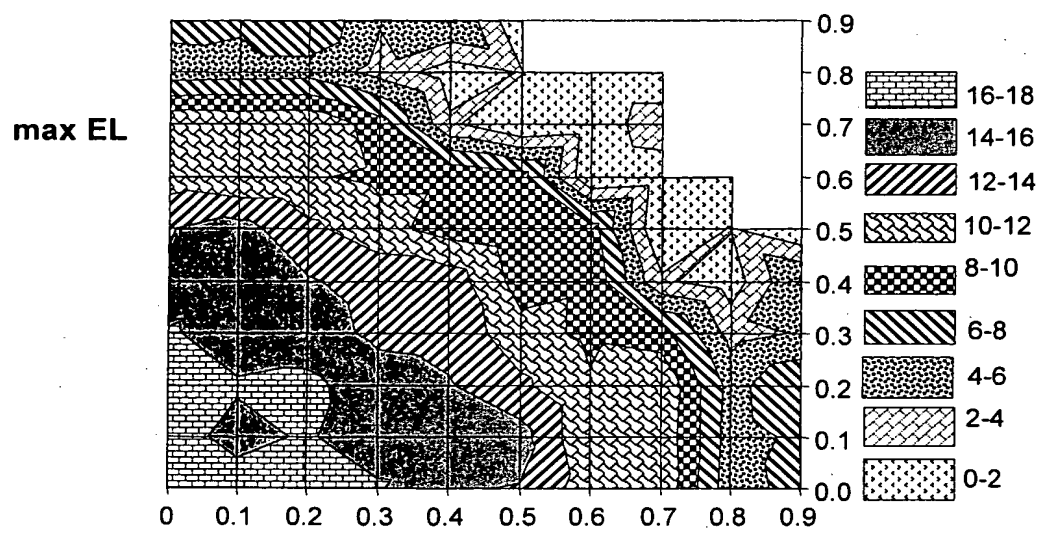


FIG. 51b



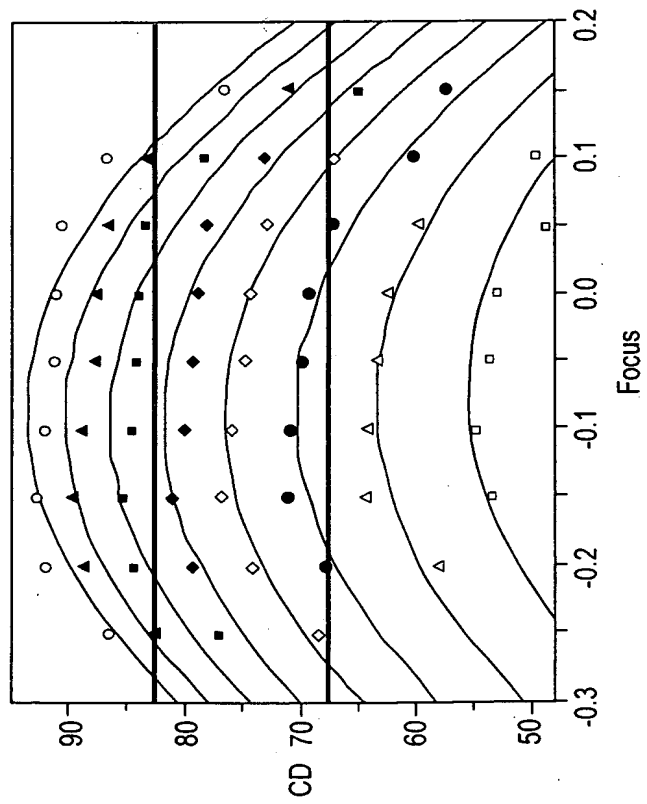


FIG. 52

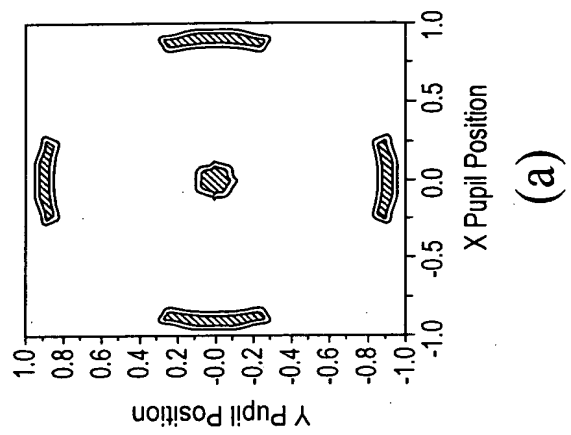
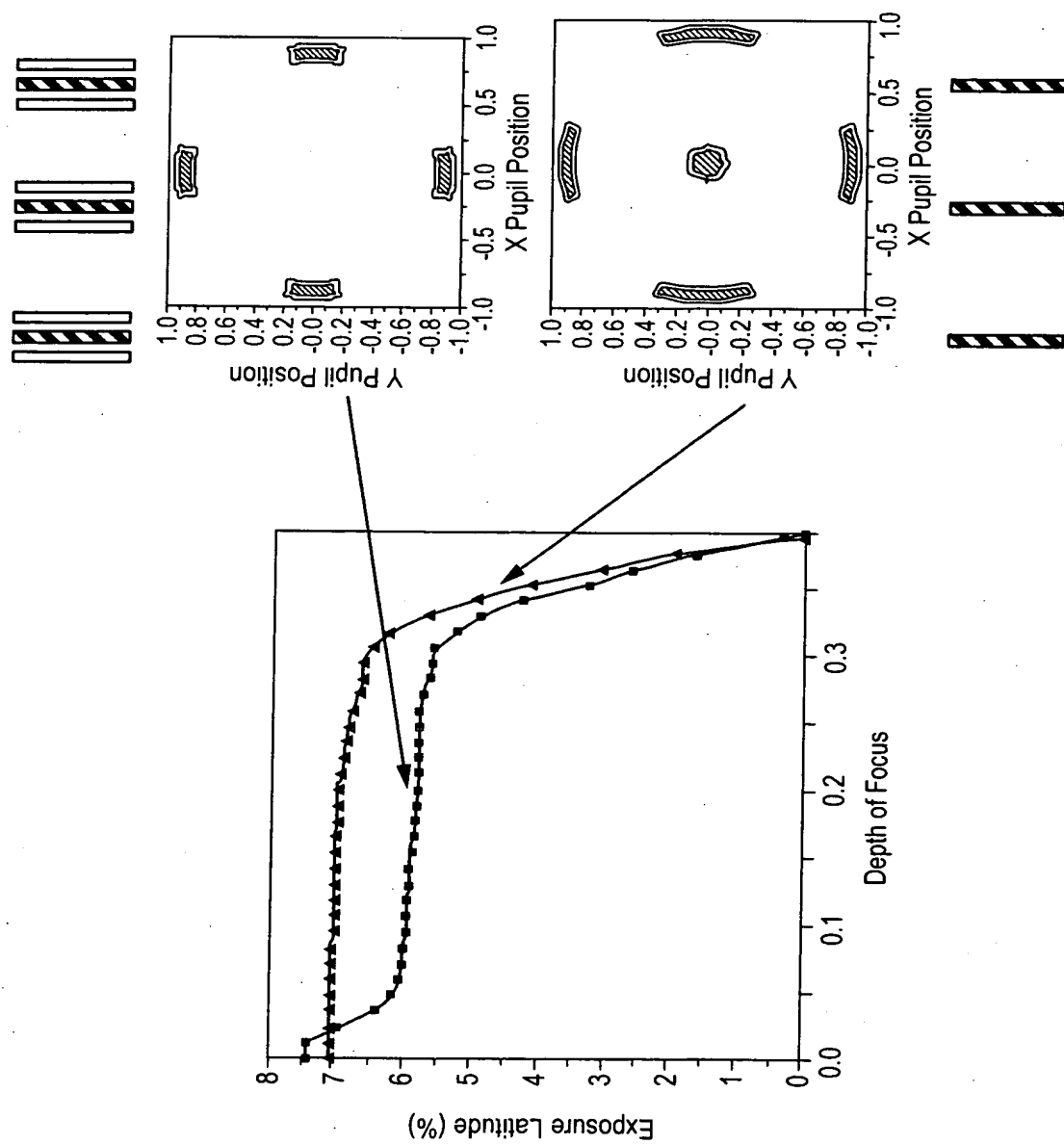
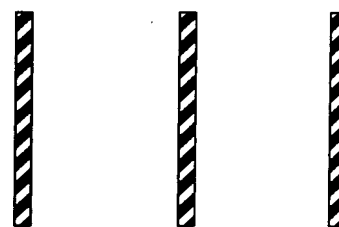
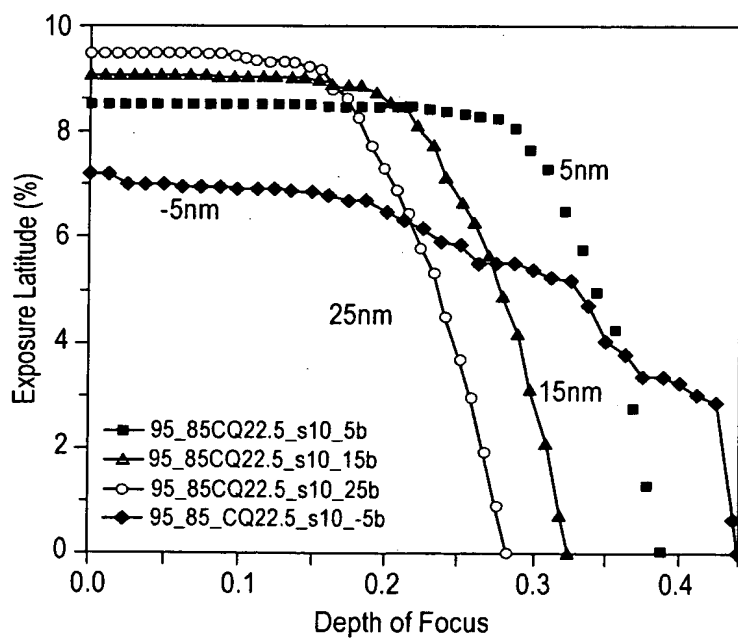
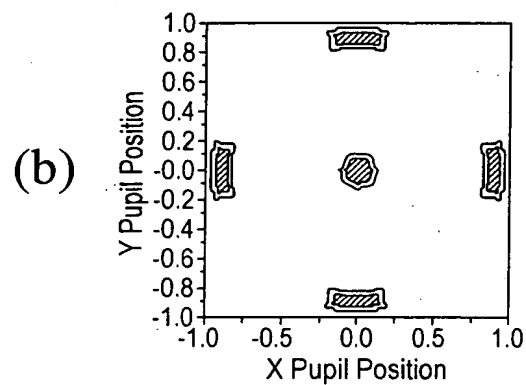


FIG. 53





(a)

FIG. 54

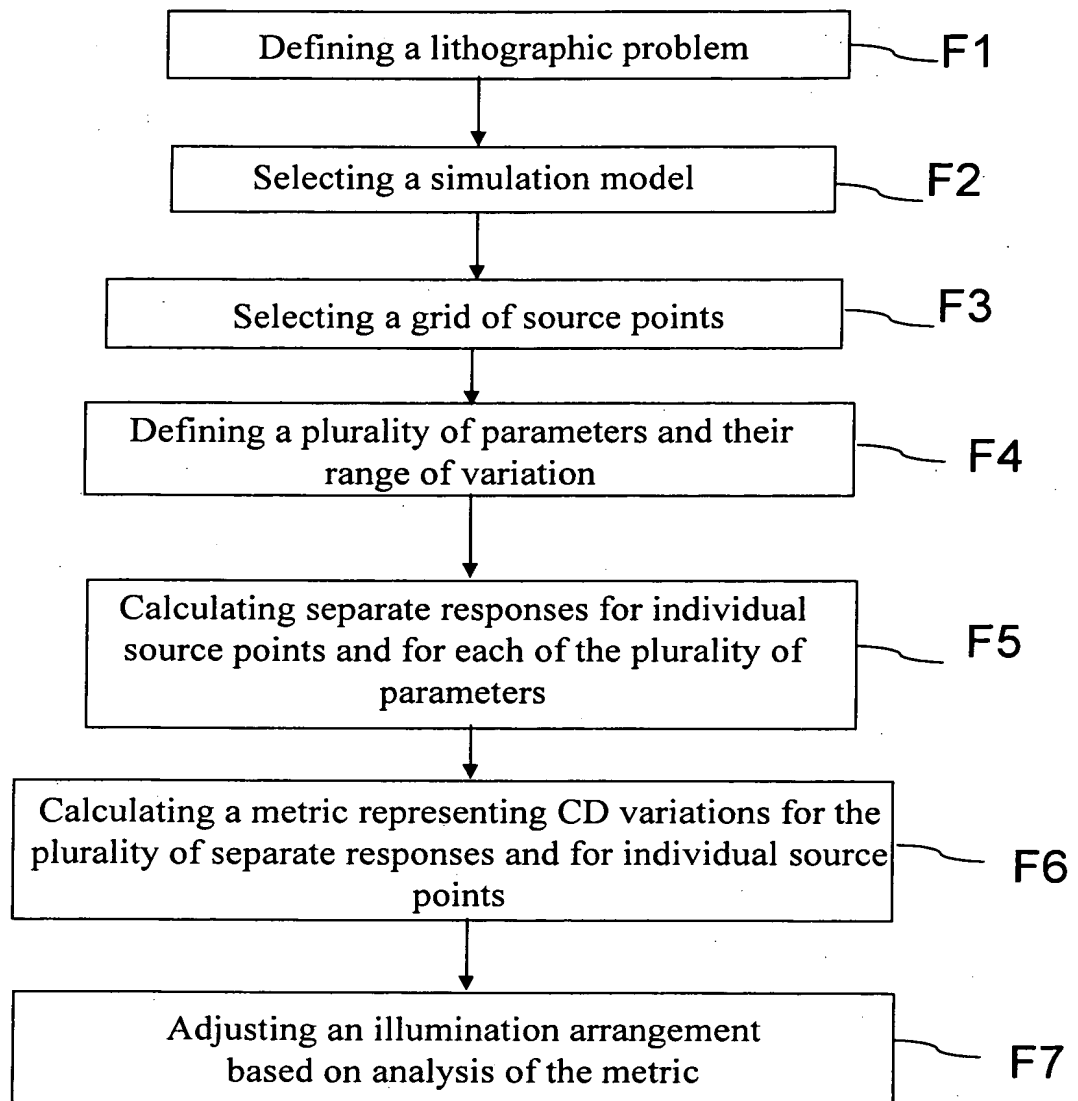
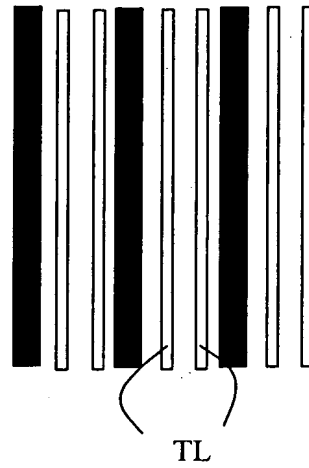


FIG. 55

FIG. 56



DOF@8%EL

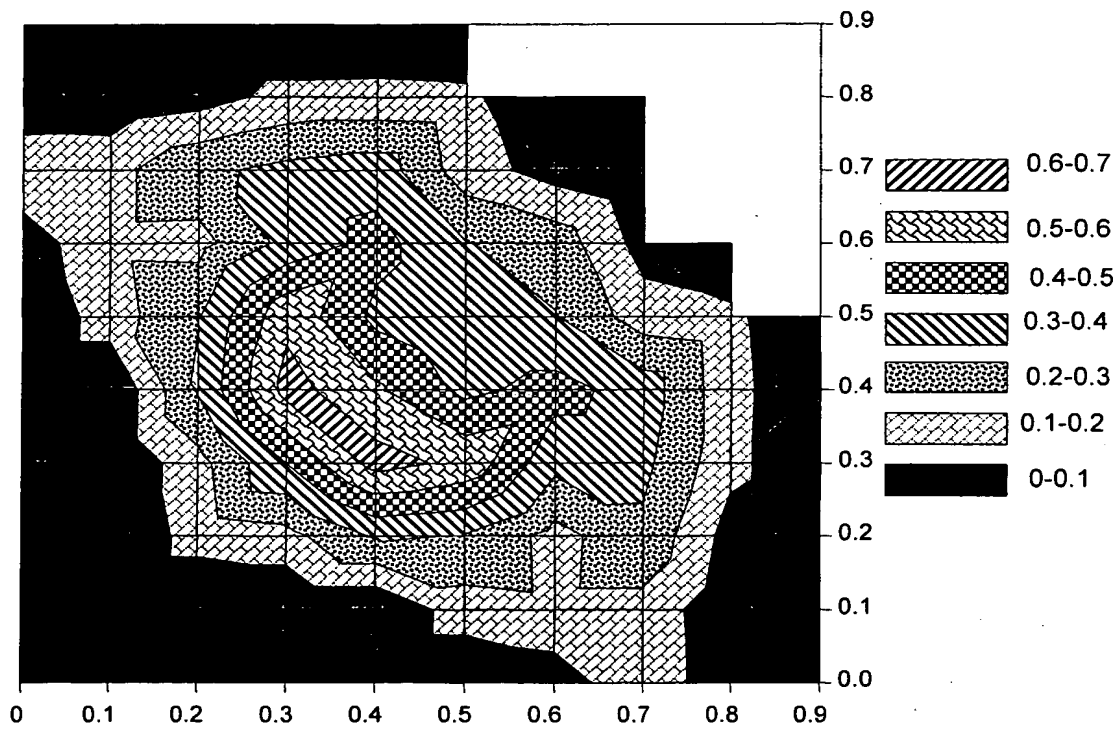


FIG. 57

total CD variation

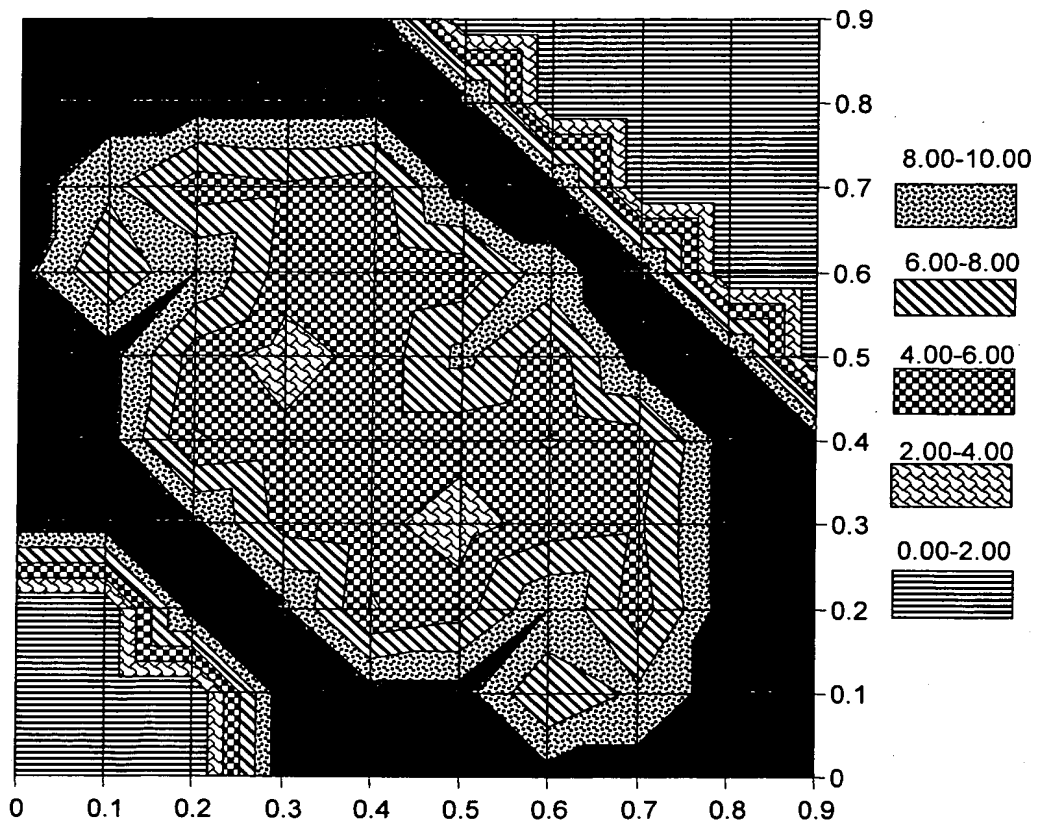


FIG. 58

